May 22–28 1987 Vol 6 No 20 60p

POPULAR Computing WEEKLY

Amiga 500 – full review inside

NEWS DESK

Commodore closes down more UK offices

Spectrum Plus 3 – launch date and prices

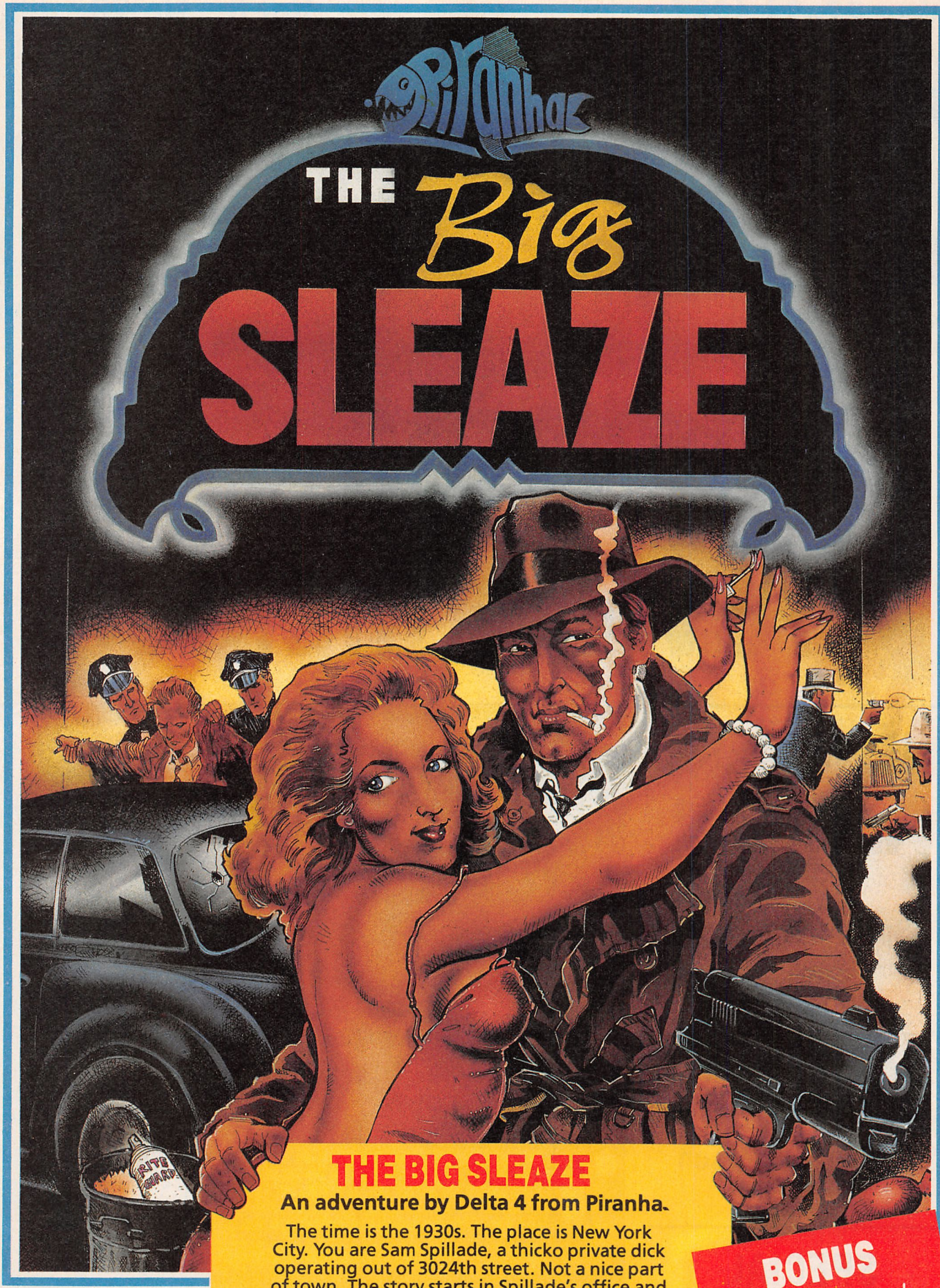
Word processing on the Atari XL/XE

New from Hewson – Zynaps

SPECIAL supplement

Amstrad CPCs and PCWs

Amiga A500



THE BIG SLEAZE

An adventure by Delta 4 from Piranha.

The time is the 1930s. The place is New York City. You are Sam Spillade, a thicko private dick operating out of 3024th street. Not a nice part of town. The story starts in Spillade's office and ends as far from New York as you can imagine. What goes on in between is a number of cases for Spillade Investigations. Crack 'em if you can. Stay alive if you're smart enough.

Spectrum, Commodore and Amstrad versions — all £9.95

BONUS

The long awaited electronic mag SCEPTICAL 3 is included free with the game.

DELTA 4

Further information from Helen Holland, Piranha, 4 Little Essex Street, London WC2R 3LF. Tel: 01-836 6633.

May 22–28

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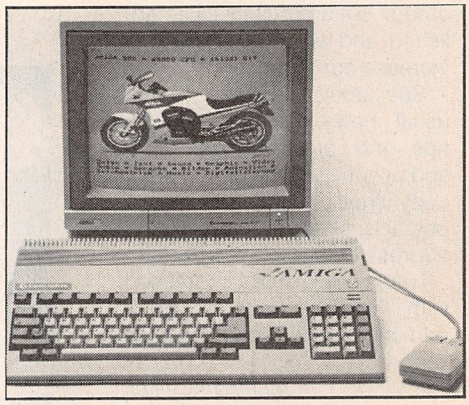
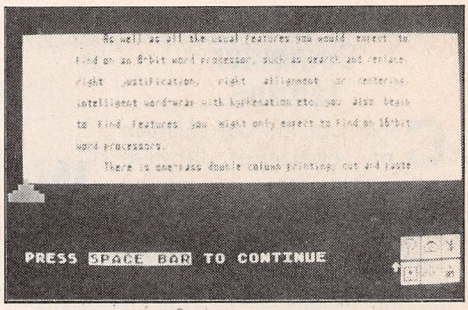
Games

66 New releases Your complete guide to all the games released this week, plus previews of Hewson's *Zynaps* and *Autoduel* from Origins. Incidentally, there's no Hall of Fame this week. We felt that none of this week's releases quite made the grade.





Top: The Amiga 500 reviewed this week.
Above: The XLent word processor.
Below: Zynaps by Hewson

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LETTERS

Spectrum spectacular

Your readers may be interested to hear about *Spectrum Spectacular*, an amateur Spectrum-based magazine which I run with a team of four others. We are quite well established and are always glad to increase our readership.

Spectacular features all the usual news, reviews, pokes, tips and programming hints, and anyone wishing to obtain a copy should send 35p and a postage stamp to me at the address below.

I must say I'm very impressed with *Popular*'s recent facelift, particularly the New Releases section.

Jonathan Davies
28 Claremont Road
Bishopton, Bristol BS7 8DH

Computer fanzine

Could you please mention my computer fanzine called *Computer Lynx* for the Commodore 64, Spectrum, BBC and Electron machines. It features software reviews, tips, hints, news, in-depth articles and other features. The cost is 49p (including postage and packaging) per issue, or 30p if you include an sae. There are only a hundred or so copies printed of each issue, but the following back issues are available, Issues one and two – ten copies of each. Issue three is still on sale, and issue four will be available from June 12.

Jonathan Morris
187 Perrysfield Road
Cheshunt, Herts EN8 0TL

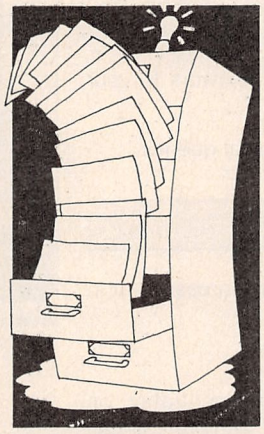
It's the price that counts

I refer to the article about Activision and Codemasters (*Popular,* May 8). Activision must be upset because the game it was intending to sell at full price is being sold under another guise at budget price.

This can only show that the major software companies are getting worried about the budget labels. What about all the *Gauntlet* clones? I personally give my full support to budget companies but most of all to Codemasters for releasing good products at cheap prices.

Also, may I add that if anyone would like to exchange tips, etc. on any aspect of the Amstrad CPC, then write to me at the address given below.

Stephen Chandler
22A Normans Road
Canvey Island, Essex SS8 7SN



Bench test doubters

With reference to Geoffrey Wearmouth's benchmarks (Letters, May 1), I would like to add to his list of results for the Commodore 128:

RAM	BMA	BMB
128K	66	255 C128
64K	23	255 in C64 mode

Also it was nice to see from your Software Hotlines that *Heroquest* is nearly completed. Last August I was one of the runners up in one of your competitions and won a copy of the game. I just hope it justifies the wait.

P J Shaw
Blackpool

Bench tests from MSX . . .

As Geoffrey Wearmouth says (Letters, May 1) a stopwatch wasn't needed: more an hourglass! To help him complete his list, the tests aren't necessary on the MTX as Bm(a) will return the GOSUB stack limit +1 = 33. A program needing more than that without a RETURN must be lacking somewhere!

Test (b), defeat accepted. The MTX only allows a string to 'grow' in this fashion to 64 characters. Perhaps the designers felt that with a built-in text handling language, this was sufficient. There are ways around it if need ever arose. Strings may be DIMensioned to any size and concatenated or sliced in the usual way.

All machines have their quirks, but those of the Memotech are easily outweighed by its advantages. I don't wish to keep 'flag waving' ad nauseum, on a three or four year old machine facing extinction, but after 'trying' 10 or more different 8-bit micros, including BBC and Amstrad, may I conclude with these points?

The Memotech is the easiest of all to program. This is due to it's superior error-checking and editing, plus it's uncomplicated BASIC, which efficiently controls graphics, sprites, screens, sound, etc., and seems the fastest floating-point Z80 around.

For M-code buffs, the built in assembler, disassembler and much-copied monitor, editor and front panel facility make it an educational investment at today's price. It is a machine for programmers of *all* levels. The nearest rival to its solid, professional-feel keyboard was the Lynx. The arithmetic generally seems more precise than Sinclairs or Amstrads.

Indifferent reviews and inadequate marketing in the UK prevented it from matching its moderate success in USA. Software thus became limited to 90 or so titles, plus various CP/M titles.

Sadly, "Black Beauty" as the user-group justifiably call it, is a beast that is becoming an endangered species; but it can proudly hold its head high even amongst today's machines. If I *must* play more games, I can pull out the Spectrum.

George Payne
Watford

. . . and more bench tests

In *Popular* (1–7 May), Geoffrey Wearmouth gave us a few bench marks and asks for other owners to complete the picture. Being an "MSX chap" (although I have owned three "other" computers), I have obliged him and typed in Bm A as it was written, even though I would class it as bad programming to have gosub without return, and came up with the answer 4088. I didn't have to type Bm B to know that the answer would be 255. I am still confused what Mr Wearmouth set out to prove.

I must confess that I am not the least bit interested in how long is a string, the test of computer's Basic is what you can do with a string once you have it. So here is a short program that doesn't do any of the boring things like slicing, counting the length of, or printing strings. What it does is this.

First it defines a string, then it draws it on the hires screen, it then makes a sprite of the Ascii values of the characters in the string, then it plays the string over three channels in different octaves, then it moves the sprite (which is positioned from where DRAW stops) one pixel at a time 255 pixels, it then checks to see if music is still being played if not it starts the program again. You have probably noticed that the explanation is longer than the program.

```
10 A$=
"EDC5REDC5RGF8F8ERGF8F8E"
20 SCREEN 2,2
30 PSET (128,96)
40 DRAWA$
50 SPRITE$(1)=A$
60 PLAY"03XA$;","04XA$;","05XA$;"
70 FOR A=1 TO 255
80 PUTSPRITE1,STEP(+1,+0) ,1
90 NEXT
100 IF PLAY (0) <>-1 THEN 30 ELSE
100
```

The tune is the first 14 notes of *Three Blind Mice.* As the string isn't 13000 characters long, it is quite easy to debug, in fact MSX Basic doesn't allow program lines to be 13000 characters long, obviously from Mr Wearmouth's letter, Spectrum Basic does. Mind you, as MSX Basic supports variables (string and numerical) inside of strings, telling it to DRAW/PLAY "XA$;XB$;XC$; etc.etc" would add up to a very long tune or drawing.

To be honest I wrote this program as I am fed up with owners of other computers telling me how good their Basic is, without knowing what other Basics' offer.

To give an example of what I mean, how many times have we seen letters from Spectrum owners criticising other computers because their Basic doesn't support GOTO/GOSUB variables, eg, GOSUB A? The answer is quite simple but because Spectrum Basic is so primitive, Spectrum owners obviously can't see why, so I will explain.

Quite a few Basic's support Renumber and when you use this command all GOTO's and GOSUB's are renumbered accordingly, as Renumber doesn't change variables using this command would make a mess of your program if GOTO etc variables was allowed.

Actually, MSX Basic would probably raise more problems if variable GOSUB's were allowed, as when Renumbering you are told if a GOTO/GOSUB line doesn't exist e.g.. 100 GOSUB1000 . . . if line 1000 didn't exist when renumbering then you would get an "undefined line in 100" error message. What all this boils down to is that if having variable GOTO/GOSUB's means that we would have to do without the more useful Renumber then *we don't want it.*

To finish this letter in the same way as Mr Wearmouth, I would be interested to see how "Sinclair chaps" would handle the above program (without sprites) and as the Memotech has been referred to in the letters page as the having a "Rolls Royce" Basic, I would be interested in how "Memotech chaps" would tackle it (with sprites).

Or is it a case of those who shout the loudest have the least to say?

John Magee
Barry, S Glamorgan

Beeb power bench tests

On the subject of bench marks and their value in comparing different types of micro-computer. The first rule is that the test should run successfully on every micro in order to yield valid results.

I am afraid that this isn't the case in Geoffrey Wearmouth's bench mark A (Letters May 1), which is supposed to test recursion. In fact on the BBC it only tests error trapping (Too many GOSUBS), and the number it attains is 26 not 14.

The BBC micro has a number of short comings, but the ability to do a large number of recursions isn't one of them. Regarding bench mark B, I can't see what is so good about creating a string 32000 characters long. I would describe this as unwieldy rather than useful.

For a demonstration of both recursion and string handling

on the BBC try the following short program.

```
10 MODE 2
20 A%=-1
30 VDU5
40 PROCrecur
50 END
60 DEFPROCrecur
70 CLEAR
80 A%=A%+1
90 IF A% MOD 600 PROCstring
100 GCOL 0,A% MOD 7+1
110 PRINTCHR$128;
120 PROCrecur
130 ENDPROC
140 DEFPROCstring
150 B%=RND(A% MOD 255)+1
160 C%RND(A% MOD 64)+1
170 D%= inkey(100)
180 CLS
190 VDU23,128,C%,C%,
    B%,B%,B%,B%,C%,C%
200 ENDPROC
```

This program will run forever, or until you get tired of it. Press escape after a few minutes, then PRINT A% to show recursion number. Changing line 100 to GCOL A%,1 and line 110 to PRINTCHR$128+CHR$11; may renew your interest (if you like flashing colours).

Apologies to Spectrum users, they won't be able to do this without resorting to peeking and poking and the other disgusting things they get up to. I'm not claiming this as a bench mark, merely a demo of Beeb power.

Alan Gray
Leeds

The original bench tester returns

Russell Thomas will have unintentionally caused confusion with his third article on the Spectrum.

While the list of system variables was accurate for his set-up (Spectrum/Kempston printer interface), it was at odds with my popular outfit (Spectrum/Alphacom 32/Microdrives).

The following comments also apply to a machine without peripherals (it will still go through the motions) and to 128K Basic as the SPECTRUM command may be executed by the user to enter 48K Basic and use a line printer.

23679 P POSN 1 BYTE.

contains 33 when printer buffer is empty. Try

```
10 LPRINT "A" ; : PRINT
PEEK 23679
```

Before a character is placed in the buffer, this location is decremented and, if the result is zero, the contents of the buffer are sent to the printer and the location is reset to 33.

23680 and 23681 PR CC 2 bytes. (X)

When the printer buffer is empty, these two locations contain 0 and 91 which together form the address 23296. Robin Bradbeer is mistaken when he says that 23681 is unused and, if this location does not contain 91, the Spectrum may crash. Try

```
10 POKE 23681,92 : LLIST
```

You won't get a crash with the Kempston printer interface.

23728 and 23729

Originally set aside as a vector for the NMI this feature could have been intentionally disabled. In any case, it would have been incompatible with the "calbas" routine of Interface 1. Interfaces numbered 87316 ownwards use these two locations to improve the text channel.

They are set ot 0 and 80 by hook code 31. If you want 32 column printout then poke 23729 with 32.

Further information can be found in *Master Your ZX Microdrive* by Andrew Pennell (Sunshine Books 1984) and *The Spectrum Operating System* by Steve Kramer (Micropress 1984).

Geoffrey Wearmouth
48 Dongola Road
London

A fair exchange

In game two of the *Colossus* chess tournament, the readers, playing white, have chosen to exchange their bishop for *Colossus*'s knight. *Colossus* now expects the readers to bring their knight back into the game, via c3 with a even position.

Well, what do you reckon? Send your suggested readers' move to *either* Inter-Mediates (*Popular* Chess), Freepost, Sawbridgeworth, Herts CM21 9YA (no stamp needed), *or Popular* Chess, Unit 2, The Maltings, Sawbridgeworth, Herts CM21 0PG (with a stamp). All entries must reach either address by Wednesday, May 27.

The move which gets the most votes will be entered into the game. Results and *Colossus*'s response will be published in two weeks time.

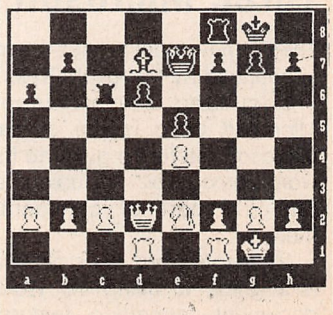
Prizes

A British Museum reproduction Arran chess set will go to the person suggesting the most accepted moves at the end of the game. Five copies of *Colossus Chess 4* will go to the most consistent entrants.

Next week, we return to Game One, where the Readers are playing black.

Game Two

1	Pe2-e4	Pc7-c5
2	Ng1-f3	Nb8-c6
3	Pd2-d4	Pc5xd4
4	Nf3xd4	Pe7-e5
5	Nd4-b5	Pa7-a6
6	Nb5-d6+	Bf8xd6
7	Qd1xd6	Qd8-f6
8	Qd6-d1	Ng8-e7
9	Nb1-c3	Pd7-d6
10	Bc1-e3	Ke8-g8 o-o
11	Bf1-e2	Bc8-d7
12	Ke1-g1 o-o	Re8-c8
13	Qd1-d2	Nc6-d4
14	Ra1-d1	Nd4xe2+
15	Nc3-e2	Rc8-c6
16	Be3-g5	Qf6-e6
17	Bg5xe7	Qe6xe7
18	?	



SPECTRUM PLUS 3 IN SHOPS THIS JULY

THE Spectrum Plus 3, Amstrad's disc driven follow up to the Plus 2, will go on sale in July at £249 (including VAT).

As an introductory offer, the Plus 3 will include six free games and a free joystick. The games are *Daley Thompson's Supertest 1, Supertest 2, Cosmic Wartoad, Gift From The Gods, Mailstrom* and *Nomad.*

The machine was on show to the trade this week at the Brown Goods Exhibition at London's Kensington Palace Hotel.

As expected, it features a 3-inch disc drive, and is similar to the CPC 6128 in appearance.

When Amstrad boss Alan Sugar bought Sinclair Research from Sir Clive Sinclair last year, he revamped the Spectrum by including a tape drive as standard and giving it a proper, conventional keyboard for the first time.

This was the Spectrum Plus 2, and the Plus 3 has been on the cards virtually ever since.

But doubts have been raised in some quarters as to software availability for the new format (see *Popular Computing Weekly,* March 20). And the £249 price tag is higher than many expected.

BBC takes Acorn's RISCs on board for new micro in June

ARM – the Acorn RISC Machine looks set to be the co-processor unit for the new 32-bit BBC micro, to be launched next month.

The development machine has one $3\frac{1}{2}$ inch floppy disc drive and a 10Mb Winchester hard disc unit built in. However, it seems likely that two versions of the machine will be produced, to be called the A1, and, confusingly, the A500.

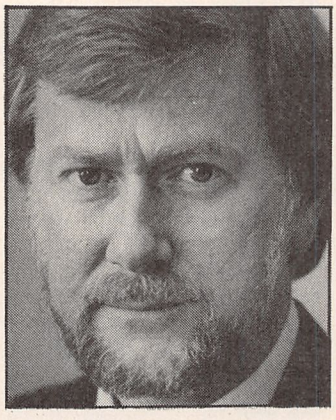
The operating system in the Rom, is called Arthur. It runs various languages, and comes with BBC Basic, Pascal, Comal and others. It runs BBC Basic programs, but not BBC machine code.

The graphics capability is understood to be similar to Commodore's Amiga, with 640 × 512 screen resolution and 256 colours available from a palette of 4096.

RISC machines' (RISC stands for Reduced Instruction Set Computer) primary advantage over CISC (Complex Set Instruction Computer) machines is their speed.

The RISC instruction set is simpler, omitting many of the complex instructions and addressing modes of CISC machines' processors.

This makes them easier to develop, cheaper to produce, and able to hold large amounts of memory and operate at much higher speeds. An Acorn RISC machine (ARM) is believed to run up to ten times faster than the Intel 80286 chip found in the IBM AT.



Acorn's MD Brian Long

Acorn is the first computer manufacturer to develop a working RISC machine, and managing director Brian Long has recently been reported as placing great hope in the RISC product to pull the company back into steady profitability.

"We've paid the price of having no 16-bit micro," he was recently quoted as saying.

No price details are yet available on the machine. Michael Page, Acorn's director of public relations, said, "We will be giving out all details at the launch in June."

Three Microsoft reference guides

THREE new books have been announced by Microsoft Press.

Command Performance: Microsoft Word is the official Microsoft reference guide to its word processor, including a pull-out chart of command menus.

Microsoft Word Style Sheets is a guide to using the *Word* document formatting feature, including more than 100 preset style sheets.

Finally, *Proficient C* is aimed at advanced level professional C programmers. It contains a guide to the standard libraries and MS-DOS interfaces, file and screen-orientated programs and programming tools to archive, view and edit files and analyse programs.

Command Performance Microsoft Word, by Nancy Andrews costs £17.95; *Microsoft Word Style Sheets,* by Peter Rinearson and Joanne Woodcock, costs £15.95; and *Proficient C,* by Angie Hansen, costs £19.95.

All three are published by Microsoft Press/Penguin Books.

Correction

APOLOGIES are in order for News Analysis in our May 15 issue. The prices quoted for the Atari 520STFM were all 15 per cent too high.

Thus the list price is £399 inclusive of VAT, a mono monitor costs £150 inclusive, although it is possible to buy the two together at the moment for £449 inclusive, and a 520STFM and high res colour monitor are available at £700.

The Commodore monitor mentioned at £351 is colour, not monochrome.

We apologise to anyone who may have been misled by these errors.

'Phoney war' with A500 ends as WHS takes Atari ST

WH Smith's John Rowland

ATARI is responding aggressively to the imminent launch of Commodore's A500 Amiga, with the announcement that the ST is to appear in 50 WH Smith stores from June 1.

"We are the first major High Street multiple to get behind the product – the ST is aimed directly at our enthusiast computer customer," said WH Smith marketing development manager John Rowland.

The move brings to an end months of speculation on the future relationship between WHS and Atari, which had been claiming such a deal was on the cards since March (see *Popular Computing Weekly,* March 13).

A major announcement on retailing and distribution plans for the A500 is expected this week.

It is understood that the ST and the A500 will both appear in selected Boots stores from next month as well.

An Atari spokeswoman was unwilling to confirm this directly, but said: "The STFM is being targetted at the games market, so obviously there are a lot more distribution outlets being talked about."

"We're in discussion with all the high street retailers and there'll be a lot more announcements during the summer," said another spokesman.

It is an open secret among Atari watchers that company hopes to push the price of the 520STFM – now £399 inc VAT down even further this year.

"Atari is always looking at ways of bringing the best value for money to the consumer, but we have no plans in the short term," commented the spokesman.

Commodore closes UK Electronics arm

COMMODORE Electronics Limited, the software and peripherals arm of Commodore, has been closed down with the loss of nine jobs.

CEL operations are understood to have been moved to Basle, Switzerland. The move marks a continuing squeeze on Commodore UK operations, with the German-based Commodore Europe now calling all the shots.

Commodore UK boss Chris Kaday left suddenly at the end of March, to be replaced by Ernest Tarien (UK General Manager) and Kristian Andersen (acting spokesman) (see *Popular Computing Weekly,* April 10).

Now that Irving Gould has ousted Tom Rattigan as chairman and chief executive (see *Popular Computing Weekly,* May 1), policy is expected to be decided jointly between Westchester in Pennsylvania, and Frankfurt.

It is a year since Commodore closed its UK assembly plant in Corby and moved to Maidenhead.

SOFTWARE HOTLINES

Bringing out a computer game based on a film is a well-established practice; game of the book and game of the TV show have had their ups and downs.

Now stand by for game of the hit single. The record in question is *N-N-N-Nineteen* and the software house taking this step is **Cascade.**

Do not think, however, that this is merely an excuse for a no holds barred shoot 'em up. Cascade assures us that the game will "follow closely the theme of the . . . record".

For the sake of those who thought that Paul Hardcastle was simply doing something clever with synthesisers, the game theme develops something like this.

You play unnamed hero (aged 19) given the choice of joining up to fight in Vietnam, or resisting being drafted. Choose the former, and you get the shoot 'em up. Choose the latter, and you play an adventure type scenario where you join the Peace Corps. Make a wrong move and you get drafted into the shoot 'em up anyway.

Still on Vietnam, the licence to computerise Oliver Stone's surprise hit movie *Platoon* has been acquired, predictably enough, by **Ocean.**

Platoon's view of the war is rather different from that portrayed by Ocean's other foray into Vietnam films, *Rambo.*

This is something which has not escaped Ocean's chairman, David Ward, who says, *"Platoon* does not contain the political rhetoric of *Rambo".* Rhetoric? Sylvester Stallone?

Shoot 'em ups are in fashion at the moment. You only have to turn to this week's New Releases page to see that. **The Edge,** never a company to let a good trend pass it by, have *Risk* and *Tangent,* two Commodore 64 blastaways, coming up, which we hope to be looking at more closely next week.

Melbourne House has something more whimsical up its sleeve, in the shape of *Wiz* (pictured below). *Wiz* is an arcade adventure by Simon Price, who also owns up to writing *Redhawk* and *Kwah!*

Wiz takes place in Midgard, twinned with Niflheim straight out of Norse mythology.

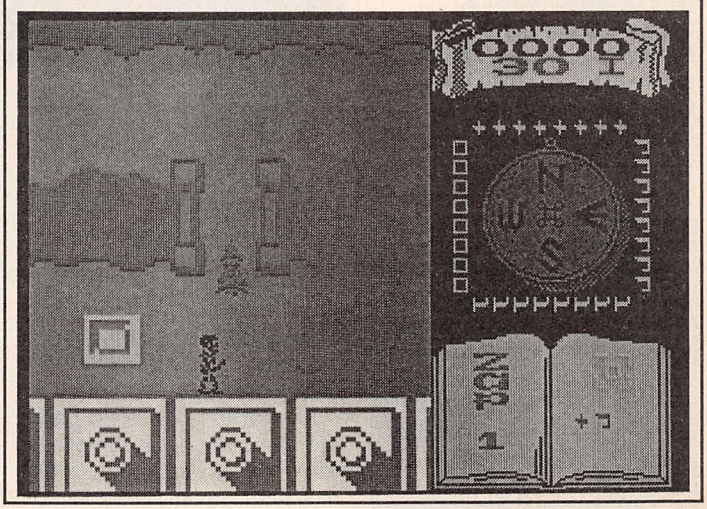
You start off with an empty spell book and no magical prowess whatsoever, and guess what, you must learn and use spells given to you by various magicians you meet, until the book is full and your power as a King Wizard is awesome.

Wiz is due out next month, which is good news, since **Melbourne House** is having some problems with release dates since moving in with **Mastertronic** a couple of weeks back.

Throne of Fire, scheduled for last week, is still conspicuous by its absence, and the *Mystery of Arkham Manor,* due in the shops this week, is resolutely remaining mysterious.

Maybe it's got something to do with the fact that **Mastertronic** chairman Frank Herman has been somewhat distracted of late by events at Wembley – Frank has now been following Tottenham Hotspur every week for a grand total of 50 years, so he's probably been at a week-long wake.

Christina Erskine



DIARY DATES

MAY

30 May
ZX Microfair
New Horticultural Hall, London SW1
Details: Hardware and Software for Spectrum and QL owners
Price: £1.50, £1.00 advance; £2.50, £2.00 on the door
Organiser: Mike Johnston 01-801 9172

JUNE

12–14 June
Commodore Show
Novotel, Hammersmith
Details: First public showing of A500 and A2000 Amigas
Price: £3 adult, £2 children
Organiser: Database Exhibitions, 061-456 2991

30 June–2 July
PC User Show
Olympia, London
Details: Hardware and software for all users of IBM PCs and compatibles
Price: £5
Organiser: EMAP International Exhibitions 01-608 1161

JULY

10–12 July
Amstrad Computer Show
Alexandra Palace Pavilion, London
Details: Displays and demonstrations of all latest hardware, software and peripherals for Amstrad computers
Price: £3 adult, £2 children, £1 discount for advance booking
Organiser: Database Exhibitions, 061-456 8835

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.

US Gold announces summer games blitz

US GOLD has announced its new software titles to be released over the summer. The range comprises mainly coin-op conversions and some new compilations, including four games in the package from Epyx, *Summer Games 1, Pitstop II, Impossible Mission* and *Breakdance.*

tion agreement with USG since last autumn. Under the title *Best of 3D,* this Spectrum package comprises *Android II, Tornado Low Level, Highway Encounter* and *Alien Highway.*

Leaderboard fans should welcome *World Class Leaderboard,* out in July: three new courses based on real courses around the world, and a fourth devised by original *Leaderboard* authors Bruce and Roger Carver to be particularly fiendish.

This new implementation will be released on Commodore, Spectrum and Amstrad formats, but an Atari ST version has not yet been considered.

"We wondered about putting out yet another extension to Leaderboard," said US Gold commercial director Tim Chaney. "But the *Tournament* and *Executive* editions did so well, it seemed to make sense."

Under US licensing agreements will come *Street Sports Baseball* from Epyx (formats yet to be finalised) and *Accolade Comics* on C64. *Baseball* depicts the game as played on street corners in the States rather than a serious sports simulation. *Accolade Comics,* on the other hand, is a type of cartoon adventure.

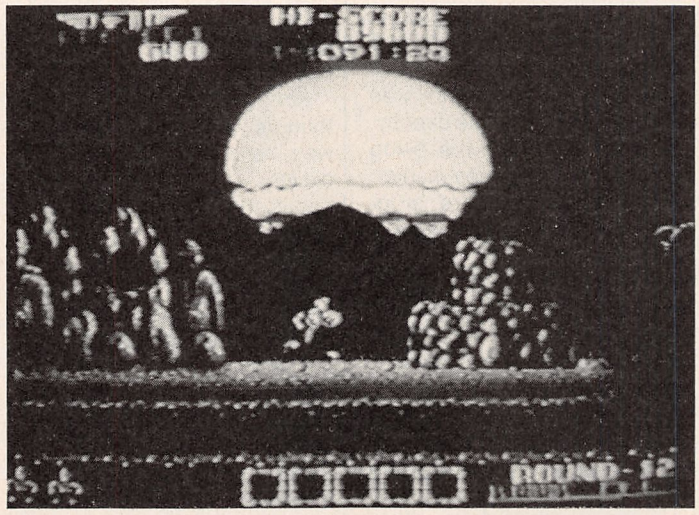
Although you type in commands as per adventures, these appear as speech bubbles on a screen portraying you and other characters in the story.

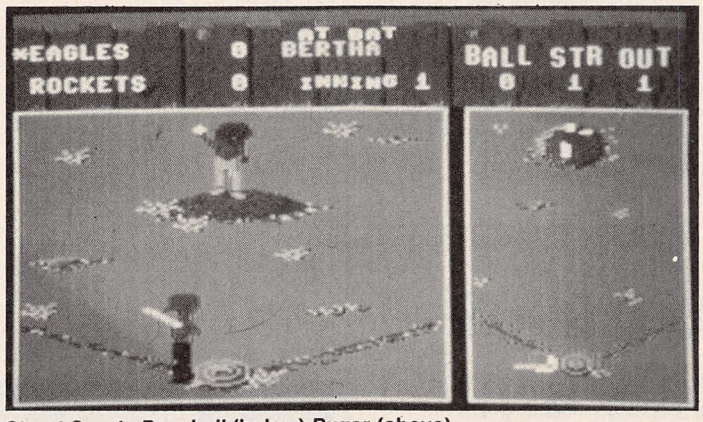
For late summer and early autumn, US Gold has three coin-op conversions lined up: *Last Mission, Rygar* and *Solomon's Key.*

Last Mission (Spectrum, C64) is an aerial view shoot the enemy game; *Rygar* (Spectrum, C64, CPC) a general combat scenario over 27 screens with scrolling backgrounds and vast numbers of baddies with assorted weapons. The graphics have a distinctly Gothic look to them, in colours reminiscent of hell-fire and damnation.

Solomon's Key (C64, Spectrum, CPC and ST) works almost as *Boulderdash* in reverse. Instead of making the blocks on screen disappear, you must create blocks and manipulate them to avoid various malevolents,and build a path leading to keys you must collect.

All the games should be out at US Gold's regular prices: £8.99 on Spectrum, £9.99 other tapes, £14.99 discs.





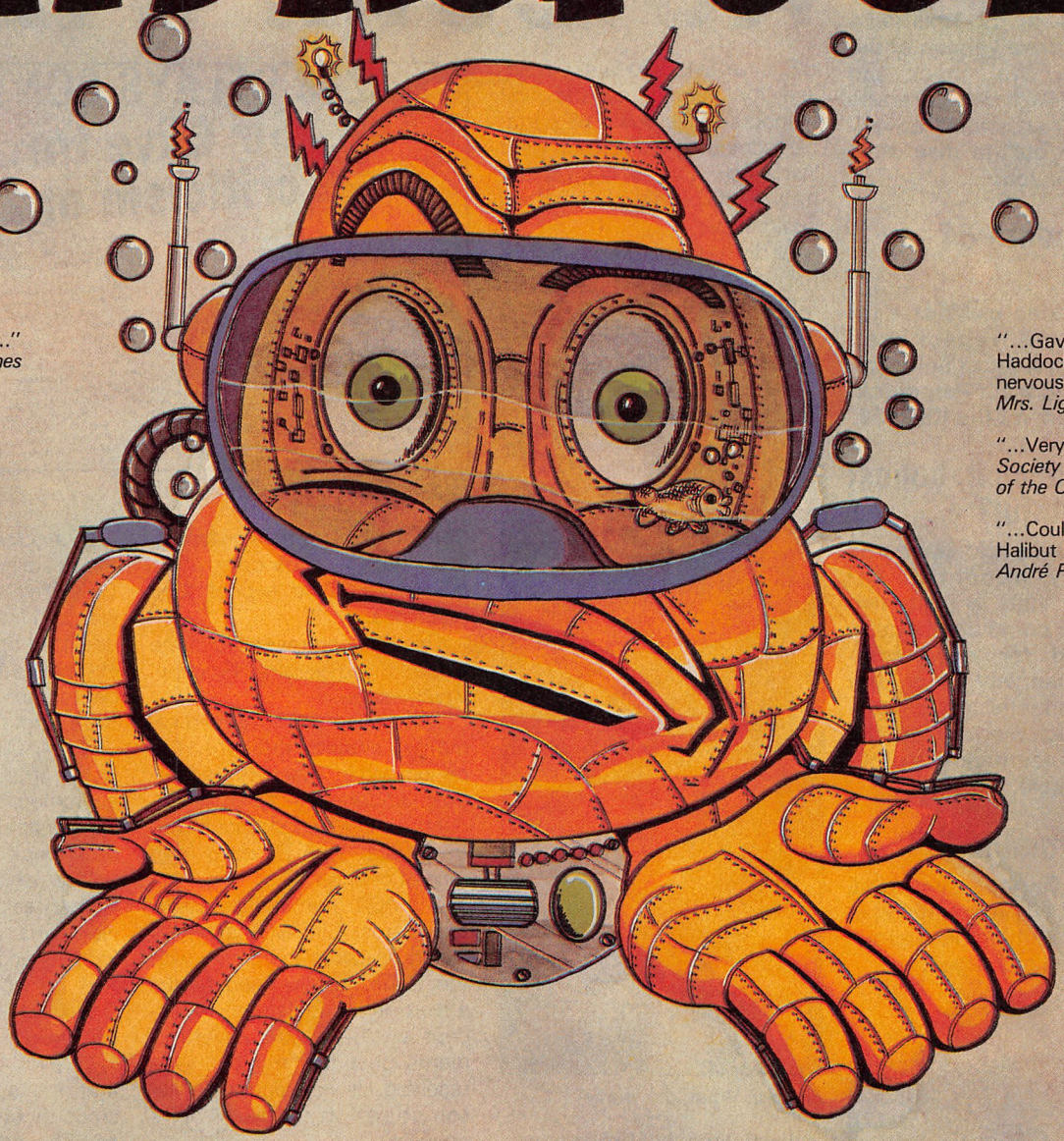
Street Sports Baseball **(below)** ***Rygar*** **(above)**

The two best known arcade conversions are *Road Runner* and *Indiana Jones.* Both of these are planned for a wide variety of micros: Spectrum, Commodore, Amstrad CPC, MSX (not *Indiana Jones*) and Atari ST. *Road Runner* is likely to be the next single US Gold release, coming out next month, with *Indiana Jones* following in July.

First of the new Gold batch, however, will be a compilation from Vortex Software, which has had a publishing/distribu-

MORE NEWS ON 10 & 12

HYDROFOOL



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'Hearsay' Magazine

"...Whale Kipper Whelk home in the Eel-side..."
Cardiff Choir News

"...Gave me a bad Haddock and made me a nervous wreck..."
Mrs. Lighthouse

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NEXT WEEK

Spectrum Plus 3

More details on Amstrad's new disc drive version of the Spectrum. We check out what software will be made available, and what advantages the built-in disc drive would give you.

Commodore 64 utilities

Chris Jenkins looks at a repriced and repackaged range from Abacus Software, which includes *X-Per*, an expert system for the C64/128.

Legal, decent, honest and truthful?

The Advertising Standards Authority recently announced that in just five years, the computer industry accounted for more complaints than any other, bar the car industry and holiday advertising. We look at why the computer market is proving unreliable.

Programming in C

As Kenn Garroch concludes his series on programming in C, we've got some special offers on C packages.

COMING SOON

First steps in machine code

Kenn Garroch begins a new programming series in two weeks: how to get going with machine code programming.

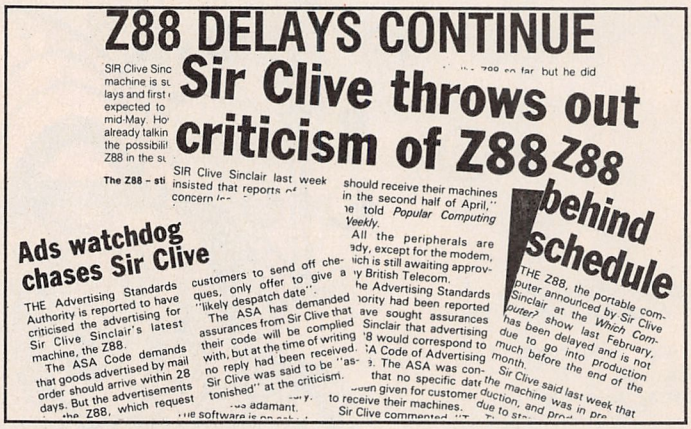
Locoscript 2

Anyone who's been using *Locoscript* on the PCW for any length of time will have noticed its limitations. *Locoscript 2* is due out next month – we'll have the full details.

YES, WE HAVE NO COMPUTERS

SIR Clive Sinclair's latest deadline for delivery of the first numbers of his new Z88 portable computer came and went last week with no sign of the new machine reaching customers.

And a spokeswoman for the Advertising Standards Authority last week expressed relief that the ASA had done its best to warn potential customers of this situation when the machine was advertised in March (see *Popular Computing Weekly*, March 20 and 27).



Z88 DELAYS CONTINUE

Sir Clive throws out criticism of Z88

Z88 behind schedule

Ads watchdog chases Sir Clive

Z88: the sorry saga continues

Sinclair: What, me worry?

It was then that his company Cambridge Computer had advertised the Z88 in *Which Computer?* on a mail order basis – but given no date when customers could expect their machines.

This is in contravention of the Code of Advertising Practice, which states:

"All mail order advertisements should indicate the period within which the advertiser undertakes to fulfil orders . . . the period should not be greater than 28 days from receipt of order."

The ASA then sought assurances from Sinclair that steps would be taken to comply with the Code, and warned media advertising outlets not to accept any further Z88 advertisements until the situation was resolved. He was reportedly 'astonished' by the ASA's concern.

Sinclair has revised his deadlines several times since the ASA incident – and each time the deadline has been missed.

Sir Clive's latest delivery date was mid-May. But last week he admitted that the software was still not ready, and wasn't expected to be completed until the end of the month.

So Sir Clive has set the first week of June as the earliest customers can expect to receive machines ordered by mail order back in March.

Meanwhile the ASA spokeswoman said: "We acted when we heard he was going to advertise, and he did undertake that he would not breach the Code. But that is as far as we can go.

"We did take steps to ensure that the situation was understood by everybody," she went on. She advised anybody still waiting for their machine to complain to the ASA directly.

Who's Who in Computing

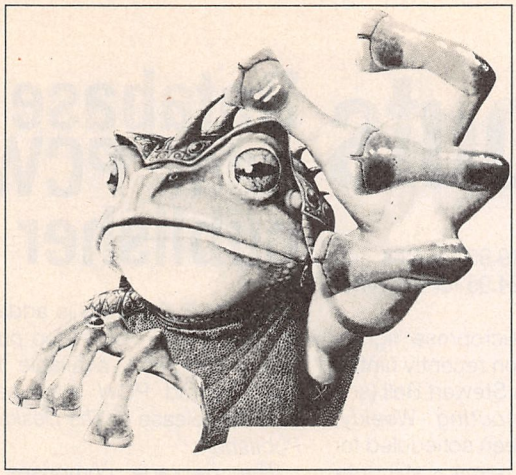
A NEW book listing every major individual computer user has just been brought out by the company which produces the *Computer Users' Year Book*.

The Computer Users' Year Book Who's Who is a comprehensive directory of knowledgeable individuals in the UK computer field.

It is likely to be of use to employers at computer installations, software houses, and anybody involved in research into business computing.

The book has a cross-reference index, listing people by name, company/organisation name, hardware, software, industry and application specialisations, business activity and business discipline specialisations.

Who's Who has a pretty comprehensive price too – £45 hardback, £40 softback (prepaid). It's available from VNU Business Publications, 32–34 Broadwick Street, London W1A 2HG, 01-439 4242.



RANARAMA BY STEVE TURNER

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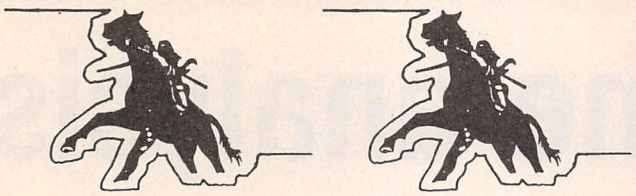

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Origin's Euro debuts

MICROPROSE and Origin have announced details of their first European releases. The announcement follows the recent appointment of Ray Evitts as Origin product manager (see *Popular Computing Weekly*, May 1).

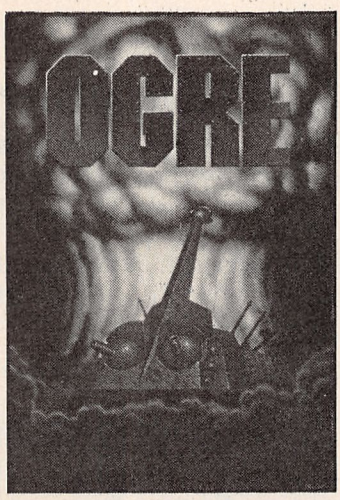
The release schedule is as follows: currently available is *Ultima III; Exodus,* on the IBM and compatibles, Apple Macintosh, Commodore Amiga, Atari ST, Commodore 64.

Next month come Apple and C64 versions of *Ultima I,* and Apple, C64 and Atari XL/XE versions of *Ultima IV; Quest of the Avatar.*

Hit car combat game *Autoduel* gets a July release on Apple, C64 and Amiga and Atari XL/XE and ST. *Moebius* follows in August on Apple and C64.

September sees the release of successful US cult wargame *Ogre.* This will be available for Apple, C64, XL/XE, ST, Amiga and IBM. Finally, in October, an Apple version of *Ring Quest* will be released.

All these items are disc only,



Ogre

and will be £19.95 for C64 and XL/XE, and £24.95 for the other formats.

The new Microprose fighter plane simulation recently hinted at by UK boss Stewart Bell (see *Popular Computing Weekly,* April 3), has been scheduled for October. The game – still untitled – will be in C64 format.

Another new game, an East-West conflict item entitled *Red Storm Rising,* will be released on the C64 in December.

Microprose has also announced Spectrum and Amstrad versions of *Gunship,* due in July, with PC, ST and Amiga formats scheduled for September.

Next month also sees the release of the arcade adventure set in Elizabethan times, *Pirates* on the C64 – a version for PC and compatibles follows in November.

Database adds PCW publisher

DATABASE Software is adding to the number of desktop publishing programs available for the Amstrad PCW machines, with the release of *The Desktop Publisher.*

The package comprises a text editor, graphics editor and page layout program. It also has a graphics library, and 15 different type styles.

The Desktop Publisher can be controlled from the keyboard or via AMX, Electric Studio or Kempston mice.

The program costs £29.95 as a stand alone product, and is also available with the AMX mouse and serial interface at an introductory price of £69.95.

Further details from Database at Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY, 061-456 8383.

The mid-game analysis

This week, Martin Bryant takes a look at the moves made so far in the *Popular* readers versus *Colossus* chess games, and explains how and why *Colossus* has played its moves so far.

This month I'll take a look at the two games being played between the readers of this magazine and my own chess program *Colossus.*

I got the idea for these games from a similar pair of games played in 1972 between the readers of the Russian newspaper *Komsomolskaia Pravda* and the then World Computer Chess Champion, a Russian program called *Kaissa* (after a mythical beauty for whom the game of chess was supposedly invented by the ancient god Mars). Russia has the largest chess playing population in the world, and they look upon their Grandmasters as superstars rather like we think of Steve Davis or Ian Botham. Not surprisingly several thousand readers participated each week. Prizes were offered to the 100 readers who submitted moves that most often coincided with the selected move. The final result was Readers 1.5, Kaissa 0.5.

"I got the idea for the readers versus *Colossus* games from a similar pair of games played in 1972 between the readers of the Russian newspaper *Komsomolskaia Pravda* and a program called *Kaissa*"

Anyway, back to our current games. In game 1 *Colossus* has White. The colours are reversed in game 2. If my analyses aren't spot-on then I make no apologies as after all I am a programmer not a chess player.

I usually give *Colossus* as long as possible to think about its next move, sometimes as long as a week if the readers' next move is obvious – even before getting your entries. Sometimes though, because of the publishing deadlines it only gets a few hours on a position. The hardware I use

continued on page 14 ▶

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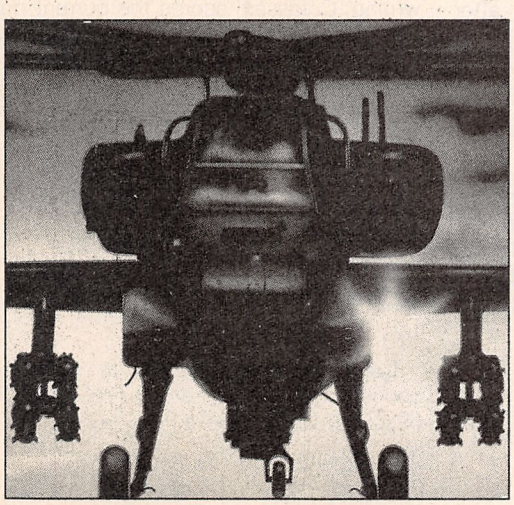

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CHESS BOARD

◀ continued from page 12

depends on what's available each week, but usually an accelerated 3.5MHz Apple II or a 2MHz BBC B+. It is not unusual for *Colossus* to search many millions of positions each week and evaluate a principal line of 12 or more ply. The readers' playing strength in these games depends really on the average of their individual abilities, not the best player taking part. This is because even though one reader may suggest the very best move in a position he may be outvoted by the more average players going for a weaker move.

Game 1

Colossus v Readers – "Two Knights" defence.

"I usually give *Colossus* as long as possible to think about its next move, sometimes as long as a week if the readers' next move is obvious. The readers' playing strength in these games depends really on the average of their abilities, because although one reader may suggest the very best move, he may be outvoted by the more average players going for a weaker move"

1. e2–e4

Colossus 4.0 has an openings book of about 3000 moves and when playing white will choose between e2–e4, d2–d4, c2–e4 or Nb1–e3 as its first move.

. . . . . e7–e5

The readers chose possibly the most popular and widely researched reply, which although of course it is perfectly acceptable, they may have done better against a computer to try a less common line in an attempt to get the program out of its "book" early.

2. Ng1–f3 Nb8–c6
3. Bf1–c4 Ng8–f6

The "Two Knights" is a favourite of tactical players, but then computers are very good at tactics too.

4. Nf3–g5!?

This move has been branded everything from "a duffer's move" (Tarrasch) to "primitive" (Panov). Despite these harsh words (the move violates the principle of not moving the same piece twice in the opening) black is often hard-pressed to justify the virtually forced loss of a pawn. I include it in *Colossus'* repertoire because it's a real computer-style move where material outweighs other factors and hence *Colossus* would be happy with its position after leaving book.

. . . . . d7–d5
5. e4xd5 Nc6–a5
6. Bc4–b5+ c7–c6
7. d5xc6 b7xc6

Up to now *Colossus* had been selecting moves from its opening book, but from now on would have to think for itself. Usually *Colossus* plays 4 or 5 moves from "book" so 7 was a good start anyhow (it can't really go wrong while still in book!).

8. Bb5–e2 h7–h6
9. Ng5–f3 e5–e4
10. Nf3–e5 Bf8–d6
11. d2–d4 e4xd3EP
12. Ne5xd3 Qd8–c7

Although *Colossus* had to "think" about the last five moves, it followed perfectly the recognised opening line. (It's very gratifying when one's program agrees with centuries of Grandmaster analyses.) However, its next move I couldn't find documented. The normal choices are Nb1–d2 or h2–h3.

13. Nb1–c3 Ke8–g8(o–o)

The readers chose the safest move here and weren't tempted by 13. . . Bd6xh2 14. g2–g3 Bh2xg3 etc. exchanging a bishop for three pawns and an attack. I thought this would have been the most interesting line. Of course, *Colossus* had analysed it all and was happy to defend against it. Still the readers move does leave *Colossus* with problems castling in safety.

14. f2–f4 Qc7–b6
15. Nc3–a4 Qb6–d4?

Colossus had expected Qb6–b5! which keeps the pressure up and I think wins the pawn on f4 eventually. The chosen move allows *Colossus* to harass the black queen and castle to relative safety. One reader did vote for Qb6–b5 but was unfortunately largely out-voted.

16. c2–c3 Qd4–d5
17. Ke1–g1 Rf8–e8
18. Be2–f3

That's all the moves up to the time of writing. *Colossus'* scores the current position as being materially a pawn up and with a slight positional edge and also it is expecting the readers to move their attacked queen to b5 now. In this game I'm quite happy with its position too.

Game 2

Readers v *Colossus* – "Sicilian" Defence: Lowenthal Variation.

1. e2–e4 c7–c5

Colossus has 5 replies to e2–e4 to choose from. They are e7–e5, d7–d5, c7–c5, e7–e8 or Ng8–f6.

2. Ng1–f3 Nb8–c6
3. d2–d4 c5xd4
4. Nf3xd4 e7–e5
5. Nd4–b5 a7–a6

In this game *Colossus* managed the more usual 5 moves from its book and from now on was thinking on its own.

6. Nb5–d6+ Bf8xd6
7. Qd1xd6 Qd8–f6
8. Qd6–d1! Ng8–e7

Again *Colossus* manages to play several moves after leaving its book which are still a recognised opening line.

9. Nb1–c3 d7–d6

Colossus lands itself with a weak pawn on d6 which sets the scene of attack and defence for many moves. It does see the pawn as a weakness but the development of the light-squared bishop and the queens rook seem to outweigh this.

10. Bc1–e3 Ke8–g8
11. Bf1–e2 Bc8–d7
12. Ke1–g1 Ra8–c8
13. Qd1–d2

Preparing to double on the d-file pressuring blacks weak d6 pawn.

. . . . . Nc6–d4

Colossus tries to get rid of white bishop pair and gain time to double rooks on the semi-open c-file to hopefully create some counterplay.

14. Ra1–d1 Nd4xe2!
15. Nc3xe2 Rc8–c6
16. Be3–g5 Qf6–e6

This last move is forced as it's the only move not losing the knight. *Colossus,* of course, found this quickly and so I didn't need to waste much time or electricity on this move! *Colossus* thinks it is slightly positionally worse in this position. I think I'd have to agree.

I'll take another look at the games after another fifteen or so moves so keep the moves coming folks! Both games are heading for interesting middlegames and who knows, you might even win one! And of course you might even win one of the many prizes too!!

Martin Bryant is the author of Colossus *chess.*

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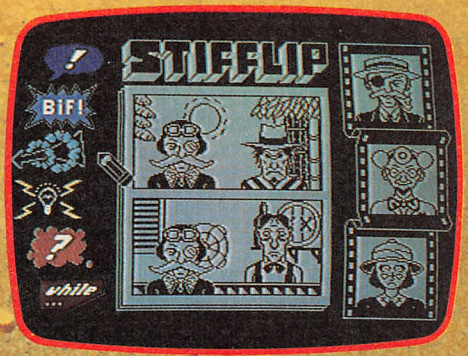

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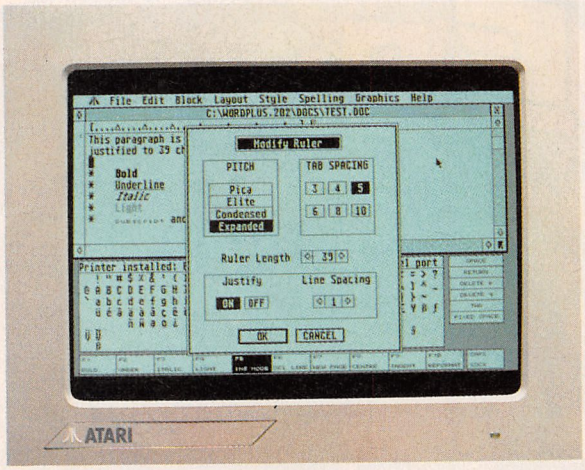
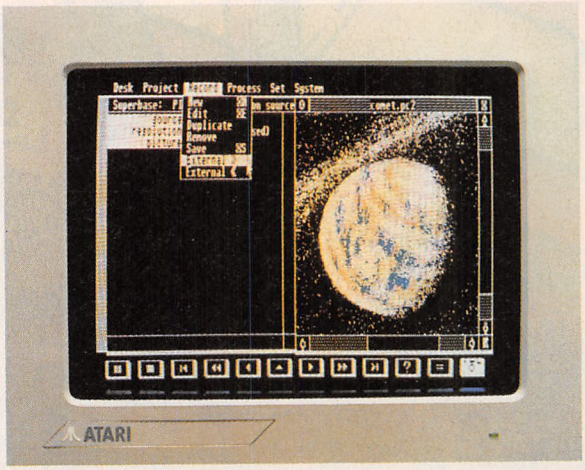
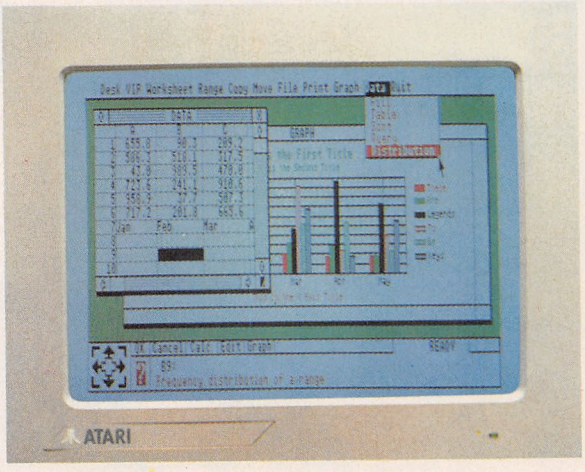


1st Word Plus – G.S.T. Professional word processor featuring U.K. spellings and integration of graphics including 1st Mail for full control of form letters etc.

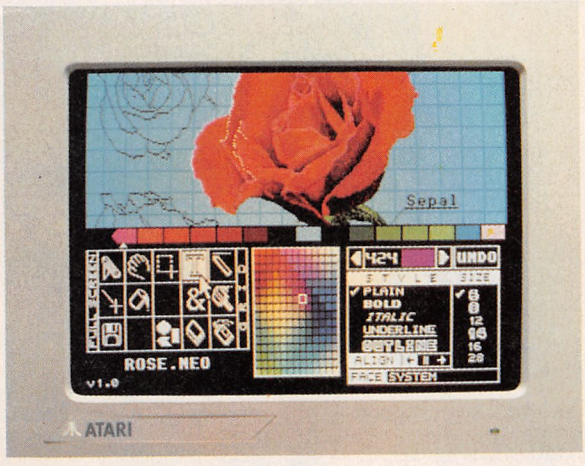


Superbase Personal – Precision Software. All the features of GEM combined with full relational database power. Easy to set up, flexible, plus unique picture index facility.

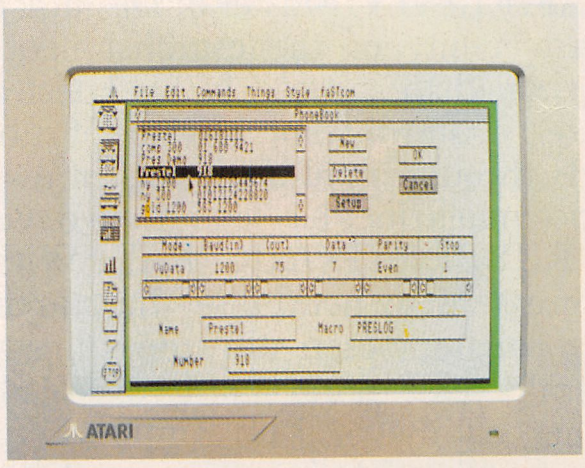
Fleet Street Publisher – Mirrorsoft. The complete desk-top publishing package. Gives you page make-up combining text and graphics for sophisticated, professional looking documents.



VIP GEM – Silica Distribution. VIP Professional is an integrated spreadsheet, database, and graphics package. GEM environment plus Lotus 1-2-3 compatibility.



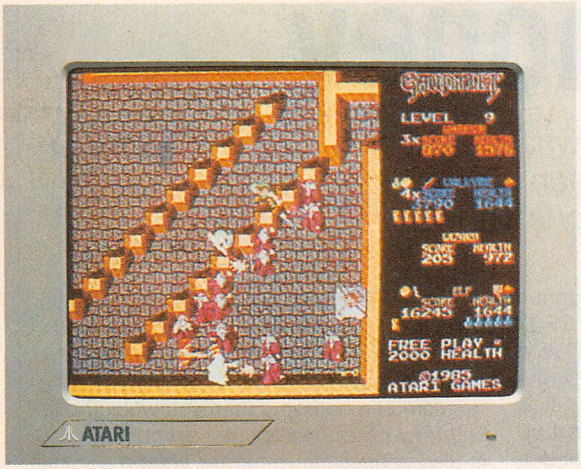
Neochrome – Atari. A powerful, sophisticated painting program for unsurpassed graphics. Work boldly on full screen canvas or in minute detail using Neochrome's magnifier.



Fastcom – Atari. A professional communications software package giving access to most major databases worldwide. (Integrated ASCII/Viewdata package).

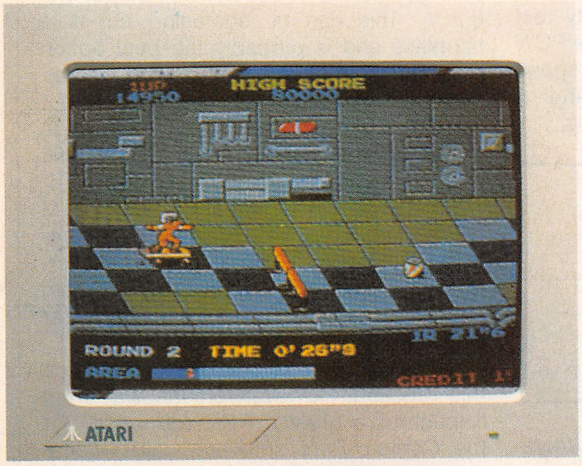
*Screenshots are from

These other fiends may be a bit trickier.

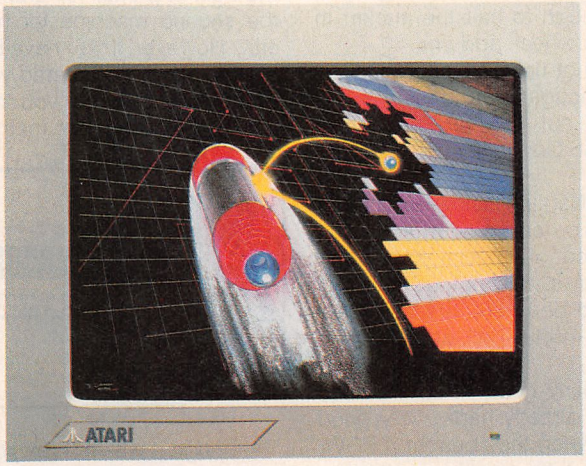


Gauntlet – U.S. Gold. Enter a world of monsters, mazes, mystery and combat in the ultimate role-playing fantasy game.

Tai Pan – Ocean. Voyage to 19th Century Hong Kong for action and excitement with pirates, smuggling and mutiny.



Metrocross – U.S. Gold.* It takes lightning reflexes to get past the potholes, obstacles and forbidden zones to reach the other side. And that's just the beginning!



Arkanoid – Imagine.* The latest smash-hit coin-op game! Are your reactions quick enough to handle 33 different play screens?

Mixing business with pleasure is no problem with an Atari 520 ST. Not when you've got over 1,000 software titles to choose from.

You'll find all the latest games and a huge range of business titles from the top business software houses. And the range is growing all the time.

You won't be short of power, either. The Atari 520 ST is twice as powerful as most business micros.

So you'll be able to create spectacular colour graphics. Even animate them to make your own films. If you're musically minded, you can compose and play a full symphony.

Or, for those who'd rather write programs than music, the 520 ST supports over thirty programming languages.

In fact, whatever you're looking for in a computer, you'll find it in the Atari 520 ST.

ATARI 520 ST
WORKS HARD · PLAYS HARD

he original Arcade game. If you require any further information concerning software featured please write to: PO Box 555, Atari House, Railway Terrace, Slough, Berks SL2 5BZ.

Comp-U-Print saves time and money

Comp-U-Print from Nabitchi is what might be called an "interface free" add-on for your Amstrad PCW. Tony Kendle reports on why it is useful and valuable.

Amstrad have tried to sell the PCW as a realistic alternative to an ordinary electric typewriter. No one can say that it is been unsuccessful at doing this, but when the machine was first released there were two common criticisms.

Firstly many doubted the longevity of the keyboard; time has revealed it to be remarkably robust but the letters are rapidly disappearing off of mine and I am now waiting for Saga or someone to come out with a replacement. Secondly the print quality, whilst adequate for most people, wasn't good enough to halt the market in 'top quality daisy wheel' add ons.

Unfortunately not only is a good second printer costly enough, but to use it has required forking out £65 for the official Amstrad CPS8256 Centronics/RS232 interface card.

I suppose that Nabitchi's new product for the PCW should be called 'interface free'. It's a combination of special cable and software that allows the printout from any CP/M program to be redirected to a Centronics interface printer, all at a bargain price of £25.

This is particularly good news for those micro users who already had a very good printer at home when they bought a PCW. The only people who won't see this as exceptional value for money will be those who have an RS232 interface printer, or who wish to use their PCW with a modem or some similar communications set up that has to have a serial output system.

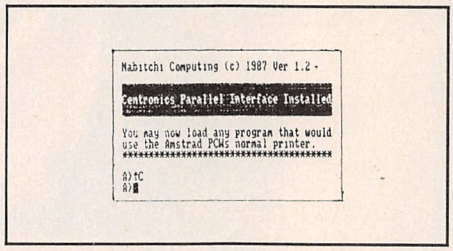
The Nabitchi cable itself looks unexciting. At one end is the Centronics plug, at the other is the normal plastic PCW printer plug. The design is robust and looks as if it will withstand a great deal of daily wear and tear.

Unfortunately there are no guiding slots on the plug at the PCW end and, if you ignore the colour coded ribbon that has a blue strip at the top, it is possible to plug it in upside down. This does no damage, but can be very worrying until you figure it all out, as the machine no longer works.

Once all of the appropriate plugs have been inserted you just run a small installation utility and all LST: output will be directed to your second printer (LST is CP/M-speak for the printer). This installation is completely 'transparent' to all other CP/M programs and doesn't use any essential memory.

By calling the *Comp-U-Print* program from a PROFILE.SUB file on your CP/M work disc you can make the installation automatic every time you boot up the computer. If you use this system it is important that the utility is not booted up whilst the ordinary PCW printer is connected – again no real harm will be done and the Extra Ptr screen dumps still work but it doesn't print ordinary text and even can crash your program if you try.

Most people will probably still want to use the built-in printer for graphics output and the second machine for high quality text only. However, if you have broken the PCW printer, or are concerned with more speed or a wide carriage you may be after a reasonably cheap dot matrix machine.



Although it was not feasible to test more than a small percentage of the range available, Nabitchi is confident that you can use any second printer with a Centronics interface as long as your software is reasonably flexible.

Some programs on the PCW tend to assume, rather shortsightedly, that you are using the supplied printer. If your favourite program has no obvious system for choosing or creating printer 'drivers' you may want to choose an Epson dot matrix type to get the full range of print effects.

This is particularly true when trying to use the program to get screen dumps or other graphics images from programs such as *Polyprint*. Of course most word processors and business software will provide full printer customisation options.

The above comments of course apply to any second printer, whether it is connected via the *Comp-U-Print* cable or the CPS8256; they in no way reflect on the quality of Nabitchi's package.

When using a second machine the computer will, of course, recognise that the PCW printer is not connected when CP/M boots up.

The PTR menu will, therefore, always read 'No Printer' and control of line feeds etc, will have to be done through the new printer's front panel buttons. This is really no more of a hardship than you would have with any other microprinter combination. It is also impossible to trigger screen dumps on a second printer using the Extra Ptr keys.

If no printer is connected at all when the *Comp-U-Print* program is installed the software ensures that the computer still thinks that there is and sends any LST output into space. This can be confusing but it is harmless and is probably the best option Nabitchi could have come up with – some programs, including Mallard Basic, drop out into CP/M if a 'no printer' error message comes up when connected to the CPS8256 and this could lose you hours of work.

I tested *Comp-U-Print* with many CP/M utilities and a Juki 6100 daisywheel printer and it worked well with all of them. Unfortunately *Locoscript* is not a CP/M program and it refuses to recognise a second printer even when connected to the CPS8256.

Locoscript 2 does promise to overcome this problem. However, on the way from Nabitchi is a greatly expanded version of the *Comp-U-Print* software, called *Loca-printer,* that lets the same cable be used from within *Locoscript.* Of course this combination is again is a much cheaper alternative than buying *Locoscript 2* plus a CPS8256.

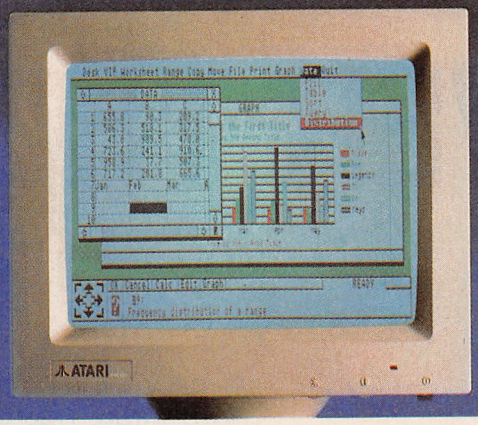
Loca-printer promises many other great things such as a pop up calculator for use with *Locoscript,* the ability to define fonts for use on screen and on the printer, and a way of jumping into CP/M without losing the contents of the M drive. A full review will follow when the program is finalised.

Nabitchi is also planning a 'switchable' cable, with appropriate changes to the software, that will allow the user to change between the PCW hardware and the second printer without having to re-boot.

Comp-U-Print is an excellent add-on for the PCW. It works well, fulfills a valuable role and saves the user a tidy packet in the process.

Product *Comp-U-Print* **Micro** Amstrad PCW **Price** £25 **Supplier** Nabitchi Software, Merseyside Innovation Centre, Mount Pleasant, Liverpool.

To help you defeat the taxman



and destroy the aliens,

we've massacred the price.

For a limited period, the Atari 520 STM is even more of a knockout than usual.

We're offering it for just £449.95 (inc. VAT) complete with SF354 disk drive, SM125 mono monitor,* a mouse worth £24.95 and 1st Word, worth £49.95.

So as well as saving you from the enemy, the 520 STM will also save you £184.

You'd better hurry though, because it won't be long before our stocks are wiped out.

ATARI 520 STM
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*Offer includes mono monitor. The 520STM plugs into a standard colour T.V.

OVER THE MOON about XLENT

A new word processor for the Atari 8-bit computers has just been released by XLEnt Software. Mark Annetts find it wonderful, and tells you why.

Just when even Atari itself was saying its 8-bit computers were just games machines, along comes a program to prove things otherwise. The program in question is a new word processor released at the recent Atari Computer Show called *The First XLEnt Word Processor.*

There have been a few quality word processors for the 8-bit Ataris in the past. What makes this one special is that the author, David Castell, has taken all the best bits from them, added a few new ideas of his own and put out a product at a significantly lower price than any of them.

How much would you expect to pay for advanced screen editing, block cut and pastes which can be separately edited between moves? How much for multi open-ended printer support, mail merge, bit-image graphics, and joystick as well as keyboard control? How much for icon displays and a full on-screen 80 column print preview with no extra hardware needed?

Well, XLEnt (UK) thinks the price should be £29.95, which compares pretty well against the £50 or £60 other companies charge for even basic word processing programs.

As well as all the usual features you would expect from an 8-bit word processor, such as search and replace, right justification, right alignment or centring, intelligent word-wrap with hyphenation, etc, you also begin to uncover extra features you might only expect to find on 16-bit word processors.

There is one-pass double column printing, cut and paste between two separate documents held in memory, partial document save, relative or absolute setting of all margins, automatic indenting and outdenting, and conditional page breaks to prevent "widows" and "orphans" (single words left at the top or bottom of a page).

Furthermore, it has the ability to skip text to allow the insertion of comments into the text which are not intended for printing, insert disc files into the text during a print out, install, at boot time, programmable printer drivers to allow printing of user definable characters (assuming the printer hardware is capable) and to load, at any time, user defined screen fonts.

If all that wasn't enough, there are still more features I haven't mentioned such as Ramdisc support, print spooling, type ahead buffering, 800/400 key click elimination, text and background intensity setting, cursor speed setting and cursor shape switching. I could go on but I think you get the picture.

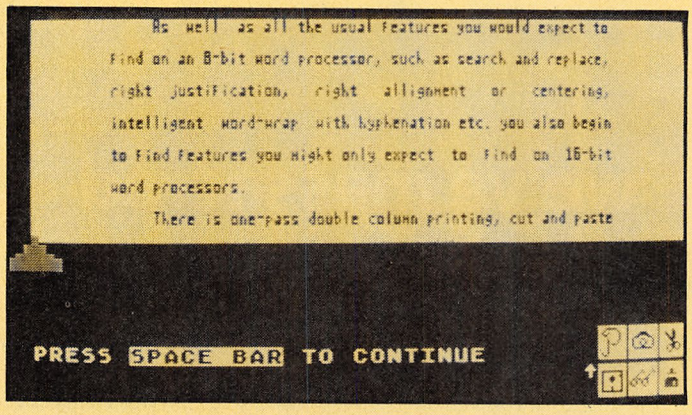
With this program I think XLEnt has come the closest, so far, to achieving their goal. Which is not only to produce software for the Atari community that is the best value for money, but quite simply the best you can buy. I'm almost embarrassed about how much I like this program – but I honestly believe it is the best word processor I have seen for the 8-bit Ataris.

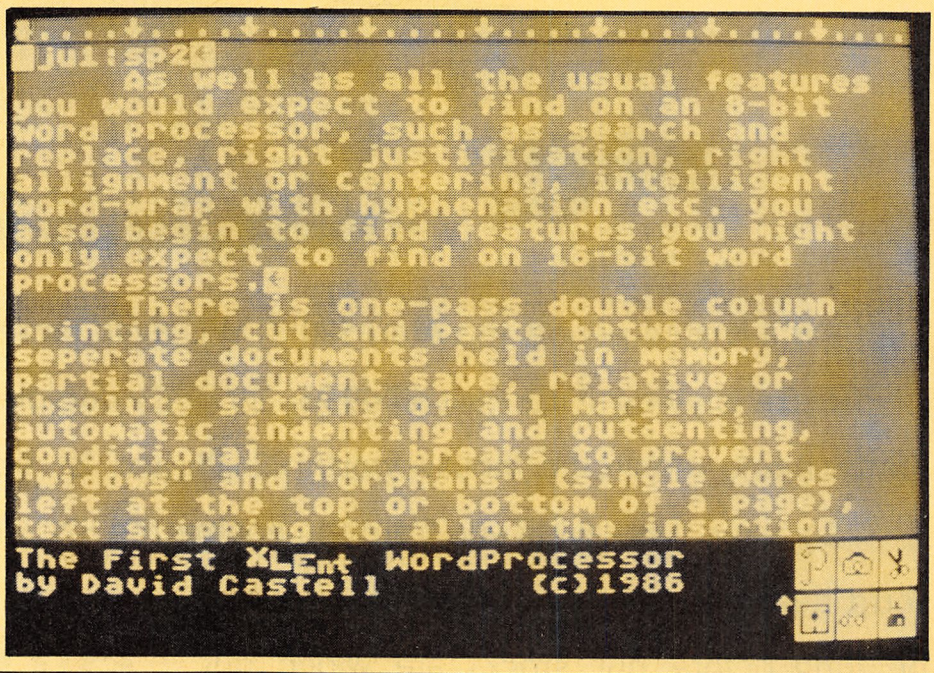
Within the limitations of the Atari's 40 column display. XLEnt has produced an outstanding product that, I for one, would quite happily use for word processing.

Mark Annetts

Program *The First XLEnt Word Processor* **Micro** Atari 8-bit, all models **Price** £29.95 **Supplier** XLEnt Software (UK), 516 Alum Rock Road, Alum Rock, Birmingham B8 3HX.

The First XLEnt Word Processor offers options such as one-pass double column printing and intelligent word-wrap with hyphenation





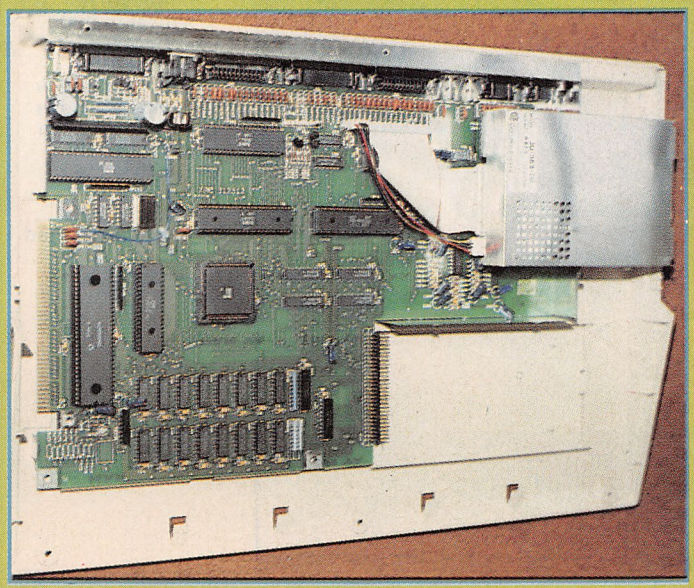
THE AMIGA 500

Commodore's latest machine is the Amiga 500 (pictured left). Its capabilities far surpass those of any 8-bit micros, but it may still be a case of "too little, too late". Chris Jenkins looks over this new micro, and decides whether or not it's worth the extra pounds.

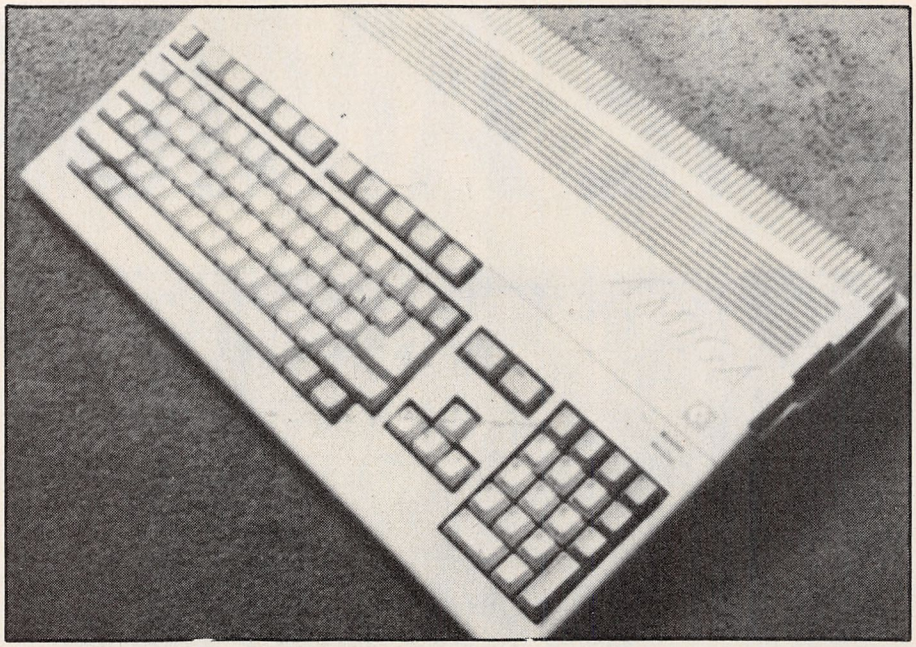
Commodore's Amiga 500 will be unveiled to the public on June 12, the first day of the Commodore show – but the overwhelming impression is 'too little, too late'.

Like the Commodore 64C, latest version of the world's best-selling 8-bit computer, the Amiga 500 presents problems for the reviewer; because it's basically just a repackaged version of a familiar product. The new-look 64C was purely a cosmetic job, with no changes to the electronics at all. The Amiga 500 is a slightly more radical development, but still very much a case of 'same computer, new box'.

continued on page 22 ▶



Below left: the new circuit board. Below right: the disc drive.



Few computer owners will be unaware of the potential of the Amiga. Designed around the Motorola 68000 and a family of custom chips for graphics, sound and data handling, the Amiga has capabilities which make any 8-bit machines look primitive.

Commodore's problem was a marketing one; how to sell this incredibly powerful machine into a market sharply divided between games and business. It decided to sell it to the business market at business prices; they goofed.

While Jack Tramiel's Atari forged ahead with the slightly less powerful but infinitely more affordable ST series, the Amiga floundered in a limbo, caught between games players and creative users who couldn't afford £1500, and business users too unimaginative to want anything other than an IBM PC clone. Now the Amiga has been redesigned and repriced into the Amiga 500 to make it compete with the Atari ST; but the move may have been too late.

The new single-unit Amiga looks like a slightly bloated Atari 520 STFM. The keyboard is similar to that of the Amiga 1000, which appeared in the standard business configuration of keyboard/main unit with disc drive/monitor/second disc drive.

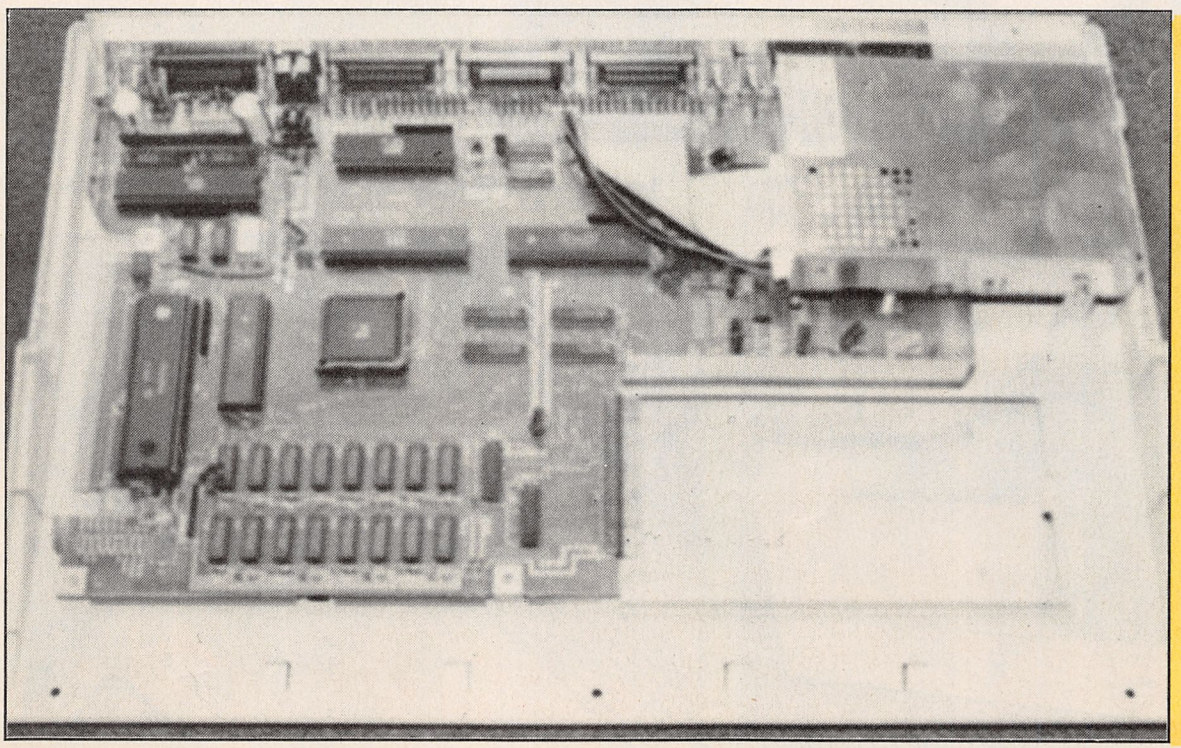
The A500 is a single unit, with the $3\frac{1}{2}$ inch 880K disc drive built into the right hand side of the machine. As with the Atari, this format makes it difficult to get at the drive, though it adds an element of compactness to what would otherwise be an unacceptably large and heavy machine.

They keyboard is similar to that of the A1000 in feel, and is similarly laid out. In imitation of the ST, though, there are now additional maths function keys. Like the ST, the A500 also features red and green Leds for power on and disc operation.

"Few computer owners will be unaware of the potential of the Amiga. Designed around the Motorola 68000 and a family of custom chips, the Amiga's capabilities make any 8-bit machines look primitive"

At the rear are the same selection of ports found on the A1000; one standard D-type for the mouse or a joystick, another for a second joystick, two phono stereo audio sockets, disc drive connector, serial and parallel sockets, power input, RGB socket, and finally monochrome monitor phono socket. The A500, then, can be used with a huge range of mono, colour and laser printers, modems, disc drives, monitors and so forth. You can even use a conventional television as a monitor, with the appropriate modulator.

All that seems to be missing is an on/off switch. After some minutes of headscratching, and steadfastly refusing to look at the manual to check something so elementary, I finally realised that the switch is on the external power supply.



The keyboard of the Amiga 500 (above) is similar to that of the Amiga 1000, which appeared in standard business configuration. The circuit board (left) is the sort to be used in the coming Amiga based coin-op arcade machines.

Another brilliant Commodore innovation; start and end every computing session crawling around on the floor looking for the power supply switch.

Internally, the A500 is a miracle of compression, seemingly practically empty apart from the 68000, disc drive housing, keyboard and custom chips. The board is the sort to be used in the forthcoming Amiga-based coin-op arcade machines – designated B-52 – and some wag has added the legend "Rock Lobster" to the etching, in recognition of the wacky pop funsters and their best known record. Are the days of computer in-jokes returning?

A reminder of the nature of the custom chips is probably in order. The graphics chip 8370 is now known as Fat Agnus; it generates all the system clocks, uses a bit blitter to move data, allows the disc and sound systems to operate with minimal interruption to the CPU, and generates all the control signals for the video Ram.

The 8362 graphics chip Denise controls the 60 or 80 column text displays, eight sprite controllers and colour handling; while the 8364 sound/peripherals chip Paula generates four voices with complex waveforms over nine octaves, and handles input/output for the disc controller and joystick ports. Lastly, the control chip Gary provides all the bus control signals and handles some of the disc circuitry. These custom chips account for the inherent superiority of the Amiga over the ST.

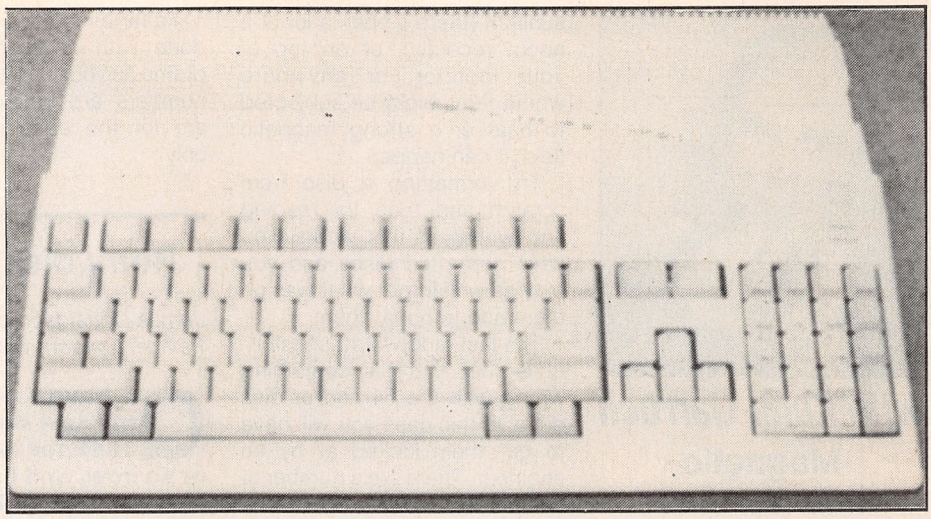
The major innovation of the A500 is that the *Kickstart* operating system is now in Rom, rather than on disc. This makes booting software much less tedious, although the *Workbench* system (Version 1.2) still has to be loaded from disc. There are only minor changes to this system, such as an additional graphics demo and a revised options screen for setting mouse speed, screen colours and so forth. A valuable addition is the Ram disc facility, which allows programs or data to be temporarily stored in an enclosed area of memory which can be accessed more quickly than a disc drive.

To recap some of the basic Amiga operating system features, the machine has a sophisticated Wimp system linked to a software tool known as *Workbench;* the Amiga equivalent of Atari's Gem. Also available is a conventional CLI (command line interface) which can be used to issue text commands without the use of the mouse.

The Amiga is fully multitasking, and features an advanced disc operating system, not surprisingly dubbed AmigaDos. Based on Cambridge Tripos, this system is capable of, for instance, asking you to insert particular discs at given times, recreating partially damaged disc data, keeping sub-directories within a main disc directory, dating program files, and so forth.

Normal screen resolution is 320 × 200 or 320 × 400 pixels, while hi-res is 640 × 200 or 640 × 400 pixels. There are 4096 colours available, 16 or 32 at a time depending on resolution.

The stereo digital four-voice sound chip allows sophisticated sound synthesis or digital sampling. There's a built-in text-to-speech unit.



The Amiga 500: an element of compactness in the design.

The Interchange File Format system allows Amiga software to swap information freely, so that, for instance, you might well port music from a composition program into a "slide show" created with a graphics package. Needless to say, the Amiga supports a wide range of languages including a powerful Basic, and C.

The A500's 512K memory is internally expandable up to 1Mb, using the A501 expansion unit. This fits into a slot beneath the main unit. There are also $5\frac{1}{4}$ inch disc drives, modems and a Midi interface available, as well as a number of video digitisers, sound samplers and other creative add-ons. IBM software compatibility is available via the Sidecar hardware IBM emulator, and rumours has it that ST, Macintosh and even Commodore 64 emulators are on the way.

All this adds up to a formidable system, which is clearly better than anything else at the price (although the Apple II GS comes close at £1000 with monitor). The Amiga 500 will set you back around £587, while the recommended 1081 monitor is £410. Total system cost, then, is almost £1000. An Atari 520STFM will cost around £599, including a colour monitor.

Is the Amiga worth the extra? Candidly – no. It's not that the machine isn't wonderful; it is, but only the most naive (or independent) computer users will buy expensive hardware just because it's well-specified. As with all questions relating to choosing a computer, the final consideration is software availability, and the Amiga will have a hard time catching up with the ST in this area – in the UK at any rate.

While the ST has a wealth of word processors, graphics packages, Midi music programs, arcade and simulation games, and business utilities, the Amiga has fallen far behind due to the initial policy of launching into a business market at professional prices.

While the A500 is an attractive machine, in the absence of complementary software buying one would be like buying a racehorse and having to keep it in a coal-shed.

Amiga 500 – software

While there are already hundreds of Amiga packages available in the US, they will continue to be in short supply here until the machine is taken up by high street dealers. Until then, a relatively small number of imported A1000 packages – all of which should run on the A500 – are available from specialists.

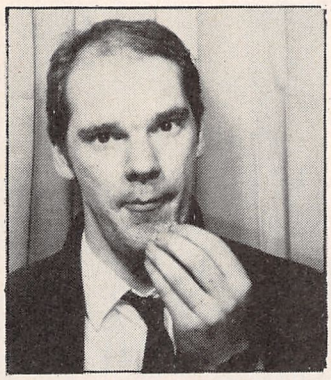
Prices range from around £30 for games titles, to over £150 for the more professional graphics, business or programming titles. Home-grown titles seem to boil down mainly to games from Rainbird and Psygnosis, utilities from Metacomco and business packages from Precision. No doubt more software houses will take up the Amiga challenge if the machine sells well here; in the meantime check out specialist distributors of American titles such as these:

Cavendish Commodore Centre of Leicester (0533 550993) has a wide selection of games under £30, including Electronic Arts' titles such as *Arctic Fox* and *Adventure Construction Set.* Simulations such as *Silent Service* and *Flight Simulator 2* are also available.

Haba Systems of Feltham (01-844 1202) offers a good selection of utilities, from programming languages such as Absoft Fortran and Basic to Metacomco's Pascal and Lisp.

MPC Software's (0602 820106) substantial range includes adventures from Infocom, Rainbird and Mindscape, the *Deluxe* series of graphics and sound packages, *Aegis Animator* and *Graphicraft,* games from Electronic Arts, Activision and Microprose, American word-processing and spreadsheet packages, and languages and utilities including the Metacomco Assembler and Shell system.

Sixty-Four Software Centre, London WC1 (01-430 0954), has over 100 Amiga and educational titles.



with Kenn Garroch

Magnetic interference

T Chiu writes:

Q I am the owner of a Commodore 64 with a VIC-1541 disc drive. Everything worked fine until recently when I found that I could not load any games that I had saved on disc.

Every time I tried to load these games, the disc drive kept making woodpecker noises and the red LED started flashing. The games either wouldn't load or wouldn't find the directory. When I looked at the error channel, it showed either a read error, file not found, ID mismatch, illegal track and sector, or drive not ready error.

When I tried to save programs onto the discs, I got a write error. I checked the drive itself, using an alignment program, but nothing was wrong with it, according to the program.

A The only time that I have had similar problems is when using my 1541 next to an unshielded monitor. The magnetic field from the monitor interferes with the signals going to and from the disc drive, and causes all sorts of errors. You might check the positioning of the drive and make sure that it is not too close to your monitor, TV, whatever.

The same problem can also occur if the lead connecting the C64 to the disc drive runs near to electrical equipment (excluding the drive or the 64 itself), try moving this.

The other possibility is that your discs have become corrupted. This is rather unlikely but, if you have left them in the sunlight (there's been a lot of it about recently), or on top of your monitor, or anywhere where they might be subjected to heat or a strong magnetic field, it can happen.

Try formatting a disc from scratch and then try reading and writing. If this works, you have corrupted discs and you may as well forget what was on them and reformat them.

The last, and worst, possibility is that there is something wrong with the 64 and/or disc drive. In this case you will have to get them looked at by an engineer. There are a number of companies advertising in the back pages of *Popular* that will help for a reasonable price.

Lost instructions

David McTaggart of Johnstone, Strathclyde, Scotland, writes:

Q I would like to ask for a little help in using an assembler I have for the Amstrad 6128. What I would like to do is assemble from disc several source files, one after the other.

The trouble is that I have lost the instructions and can't remember how this is done. The name of the assembler is GENA3.1 (Devpac 80) from Hisoft. I would be very grateful if you could help.

A The most likely command to use is **F filename.* If you include this in your code, it loads and assembles a predefined section from disc. So, if you write a piece of code such as:

```
10 Linefd:
20 LD A,10
30 CALL print ;print is the amstrad to screen command
40 RET
```

Save this with P10,40,Feed. It resides on disc, available to be called with:

```
10 CALL Linefd
20 ;rest of program
30 *F Feed ;load libary/sub file
```

As far as I know, this can be done with as many sub-programs as you like. Note that line numbers are ignored as they are for the editor's reference only.

Retry disc drive

James Donaldson of Alexandra Palace, London, writes:

Q I have been using my new Amstrad PC 1512 for two weeks or so now, and have had a little trouble with the disc drives. Every so often, when I insert a disc, the machine tells me that it's not there or it can't read it.

I find that if I take the disc out and put it back in again, then press *Retry*, it works. Is there something wrong with my machine?

A There's nothing fatally wrong, all that is happening is that the drive doesn't line up the disc properly the first time it is inserted. Anyone who remembers the Torch Pack for the BBC will have come across the same problem.

The solution is to insert the disc but not push the lever down. When you hear the drive begin to spin, then press the lever down and the disc should be lined up.

I'm not too sure of the cause of this problem but I think it is due to cheap disc drives that don't automatically centre the disc.

Spectrum extra port

Alan Hodson of Ashton, Preston, Lancs, writes:

Q I own a Spectrum 48K and recently purchased a ZX interface 2.

Along with the two joystick sockets, and the printer port at the rear of the machine, there is an extra port on the top. Could you tell me what this extra port is for?

A friend thought that it is for cartridge-based software that Sinclair never actually developed! But I have my doubts about this. Can you help?

A Your friend is almost correct in his assumption that it is a cartridge port. In the dim and distant past, when people thought that computers were still a pretty new idea (about two to three years ago), there was a computer called the Spectrum which, unlike Atari and Commodore its older relatives, did not have a cartridge port.

Noticing this lack, the great magician Uncle Clive took pity on it, waved his magic metal wand, and hey presto, there was an interface box for poor little Spectrum. All the wonderful things it had been dreaming of, joysticks, printer ports, and above all, in startling glory, a cartridge port.

Spectrum took to its new interface with joyous abandon, having lots of software written that could use its new joysticks.

In fact, there was so much software available on cassette that no one thought of putting any on to the cartridge system.

Uncle Clive, coming out of his reverie, saw that still no one was really doing anything with his masterpiece of cartridge technology. So he produced some of his own as an encouragement to others.

Unfortunately, no one took the slightest bit of notice and carried on producing software on cassette and occasionally on new fangled disc drivers.

Spectrum was not really bothered since it was getting so much software, whether it was on cartridge or not didn't really matter. Seeing that Spectrum was happy, and feeling a little put out by the turn of events, Uncle Clive retired once more to his contemplations.

And any word that the extra interface on the top of one of the Spectrum's interfaces was for cartridges vanished into the mists of time.

Of course, this happened many years ago, and these days, no-one believes a byte of it.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Kenn Garroch and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke, PCW,* 12-13 Little Newport Street, London WC2H 7PP.

Relative sprite movement

Leslie Wigmore of Epping, Essex, writes:

Q I am working on a game for the Commodore 64 in machine code and again, the score is up the side of the screen.

What I would like to know is how can I move my sprites across the entire screen without writing separate routines for each sprite?

A I presume that you want to move all your sprites either horizontally or vertically from their present positions, to somewhere else on the screen (a relative movement for all sprites). This just means taking the contents of each sprite register and increasing or decreasing it by a set amount.

It is up to the main game program to keep track of where the sprites are (unless you are using the sprite position register for this).

As far as I know, there is no way of making the VIC chip move them all at once so you will have to do it for each sprite.

However, the following subroutine should do the trick. It may be that you are using the sprites on the score board. In this case, you would be better moving the score board to the bottom or top of the screen and, under raster interrupt control, load new positions for the sprites into the sprite regs every screen refresh.

```
VIC=53248
SPX0=VIC
SPX1=VIC+2
SPX2=VIC+4
SPX3=VIC+6
SPX4=VIC+8
SPX5=VIC+10
SPX6=VIC+12
SPX7=VIC+14
SPXH=VIC+16
SPY0=VIC+1
SPY1=VIC+3
SPY2=VIC+5
SPY3=VIC+7
SPY5=VIC+9
SPY6=VIC+11
SPY7=VIC+13
ZPCNT=$FE    ;Or some other convenient zero page location
Subroutine is:

MOVSP:                      ;Step in X and Y for X and Y
       CLC                  ;No of times in ZPCNT
       TXA
       ADC SPX0
       STA SPX0
       BCS X0H
MSP1:  TXA
       ADC SPX1
       STA SPX1
       BCS X1H
MSP2:  TXA
       ADC SPX2
       STA SPX2
       BCS X2H
MSP3:  TXA
       ADC SPX3
       STA SPX3
       BCS X3H
MSP4:  TXA
       ADC SPX4
       STA SPX4
       BCS X4H
MSP5:  TXA
       ADC SPX5
       STA SPX5
       BCS X5H
MSP6:  TXA
       ADC SPX6
       STA SPX6
       BCS X6H
MSP7:  TXA
       ADC SPX7
       STA SPX7
       BCS X7H
       JMP DOY    ;End of Xs jump to Ys
X0H:   LDA SPXH   ; this has to be here else branch to big
       AND #1
       STA SPXH
       CLC
       JMP MSP1

X1H:   LDA SPXH
       AND #2
       STA SPXH
       CLC
       JMP MSP2
X2H:   LDA SPXH
       AND #4
       STA SPXH
       CLC
       JMP MSP3
X3H:   LDA SPXH
       AND #8
       STA SPXH
       CLC
       JMP MSP4
X4H:   LDA SPXH
       AND #16
       STA SPXH
       CLC
       JMP MSP5
X5H:   LDA SPXH
       AND #32
       STA SPXH
       CLC
       JMP MSP6
X6H:   LDA SPXH
       AND #64
       STA SPXH
       CLC
       JMP MSP7
X7H:   LDA SPXH
       AND #128
       STA SPXH
       CLC
DOY:   TYA
       ADC SPY0
       STA SPY0
       TYA
       ADC SPY1
       STA SPY1
       TYA
       ADC SPY2
       STA SPY2
       TYA
       ADC SPY3
       STA SPY3
       TYA
       ADC SPY4
       STA SPY4
       TYA
       ADC SPY5
       STA SPY5
       TYA
       ADC SPY6
       STA SPY6
       TYA
       ADC SPY7
       STA SPY7
       DEC ZPCNT
       BNE MOVESP
       RTS

       ENDS.
```

MSX upgrade?

Derek Paterson of Largs, Ayrshire, Scotland, writes:

Q Is the MSX2 Level available as an upgrade to MSX1 users?

A When the MSX2 idea was first broached, there was some talk of making an upgrade device for MSX1. As far as I know, this was never produced unless some of our readers know better?

A speech impediment

James Garsides, of Airdrie, writes:

Q I own an Amstrad CPC 464 and I bought an Amstrad speech synthesiser which plugs in to use the amplifier. I have now bought a disc drive and it will save and load from disc but not run CP/M or Logo. Something appears and then the disc stops. If I take out the speech synthesiser interface then everything is OK.

I do not own a commercial disc to see what happens on it. When the speech synth tape is loaded, it says 'address' and I suspect that this is the problem, the speech synth and CP/M are both trying to occupy the same space.

PS Is it possible to transfer the speech synth tape to disc?

A I suspect that you are correct, and that there appears to be a collision over who uses what space in the computer's memory. The problem is that CP/M requires at least 48K to operate properly with 64K being even better. It may be possible to place the speech synth system in memory unused by CP/M which is between 100 hex and DC00 hex (256 and 56320 decimal) preferably as near to the top of this as possible.

Not having used the speech synth and, I have to admit, not knowing a great deal about it, it may be that the software needs to use some of the reserved CP/M space in which case, you will have to unplug it every time you wish to use CP/M or Logo which runs under CP/M.

Copying the tape to disc may be possible with the following. Which routine you use depends on whether the software is binary (BIN file) or basic (BAS). Basic files can be loaded and listed, binary files cannot.

Basic transfer tape to disc:

```
|TAPE
LOAD"filename"
|DISC
SAVE"Filename"
Binary transfer tape to disk:
H=HIMEM
|TAPE
MEMORY S-1
LOAD"filename"
|DISC
SAVE"filename",B,S,L,R
MEMORY H
```

where S is the start address, L is the length, R is an optional run address.

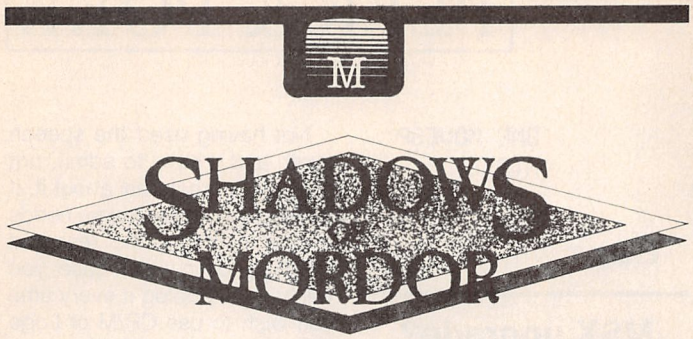
If the second doesn't work, you might try:

```
|CPM
CLOAD"filename"
AMSDOS
```

F Karim of Kensington, London, writes:

Q I use an IBM PC at work and I use Wordstar on the machine. The files are saved on 1S/2D discs. I have recently bought an Amstrad PC1512 with twin disc drives and it used 2S/2D discs. How can I run Wordstar from the IBM to the Amstrad?

A As far as I am aware, all PC compatibles use double sided drives (I may be wrong) and since there is usually 340K or so per disc, on IBM PC discs, this would appear to be the case. The fact that the discs you are using at work are single sided double density does not mean that they cannot be used with a double sided drive. It simply means that you are running a slight risk of losing some data from the un-guaranteed side of the disc. You might try borrowing some discs from work and inserting them into the Amstrad (back them up on the IBM first, just to be sure). I think you will find that they will run fine.



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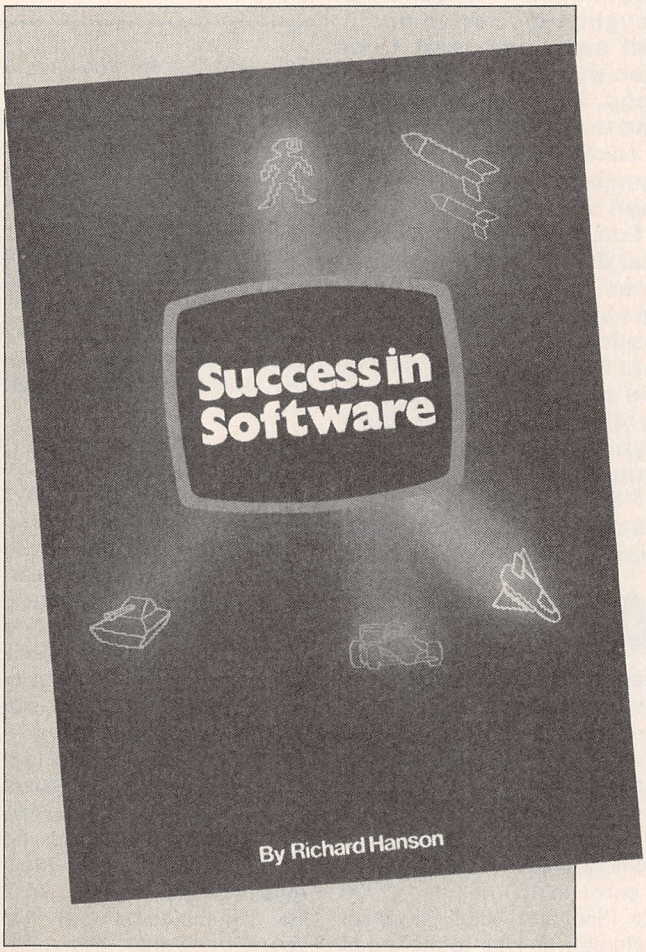

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SPECIAL supplement

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22–28 May

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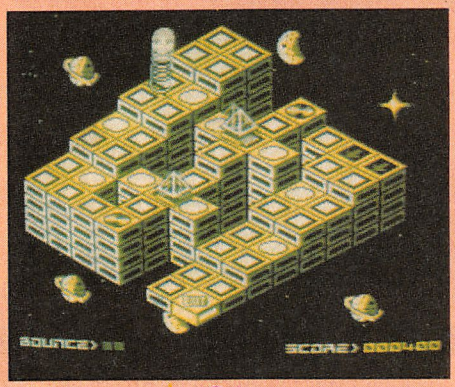

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Is the CPC games market in decline?

Amstrad's grip on the micro market continues to tighten with the continued success of the PCs.

It's easy to forget, though, that the foundation of this success was built on computers embodying the same concepts of established technology packaged at an acceptable price; the CPCs and PCWs.

While the CPCs largely addressed the games market, offering colourful graphics and such standards as the built-in cassette player, the PCWs started off as office word-processors and have now become much, much more.

As you'll see from this supplement, applications and hardware products for both series are also appearing. Amstrad owners can congratulate themselves on having perhaps the best of all possible worlds. ◀

NEWS

Buffer

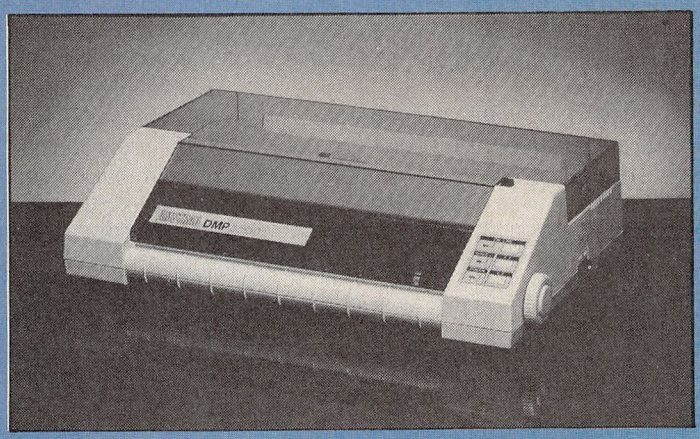
Users of Amstrad's DMP 2000/3000 printers – or the Riteman equivalents – can now upgrade the printer memory buffer with a simple do-it-yourself kit.

Goldmark's upgrade expands the buffer from 2K – most of which is used up by the printer's operating system – to 8K, which allows the printer to store around four pages of text, and carry on printing while the computer does something else.

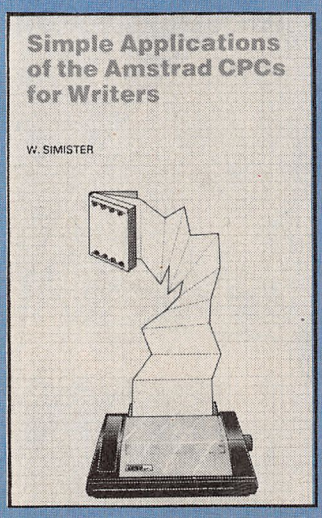
Fitting the upgrade is straightforward, involving cutting a PCB track, moving a jumper and installing the new RAM chip. An illustrated instruction leaflet is included with the kit.

The kit costs £5.50 by mail order, and also allows the download character set to be redefined using a forthcoming software package, to cost £7.50 on cassette or £11.50 on disc.

Contact Goldmark at 51 Comet Road, Hatfield, Herts, 07072-71529. ◀



DMP3000 printer ▶



Write on CPC

Latest pocket-sized publication from Babani Books is *Simple Applications of the Amstrad CPCs for Writers*, by W Simister, costing £2.95.

The 80 page booklet covers the 464, 664, 6128, and DMP1 and 2000 printers. The book argues that the expense and sophistication of many commercial word processing packages are unnecessary burdens, and offers a 15-line Basic program which performs most of the simple w/p functions. Also included are some fast text-handling routines and instructions for accessing the special features of the printers.

The book is number 191 in the technical series, and a full list can be obtained free of charge from Bernard Babani Publishing, The Grampians, Shepherds Bush Road, London W6 7NF, 01-603 2581. ◀

Network puzzle

This week's "spot the deliberate mistake" contest is sponsored by Mitchell Marketing and Communications, whose press release on ICCT's **LanLink PC** networking system included the bizarre photo left.

How you are expected to jam a 5.25 inch disc into a PCW, the message doesn't explain.

What it does claim is that V 4.0 of the networking system, designed for IBM PCs, XTs, ATs and compatibles, now provides guidance on installing popular packages such as Wordstar, and allows every PC in the network to act as server or satellite.

At only £250 per station, it could persuade many PCW owners to attack their disc drives with the old hacksaw. ◀

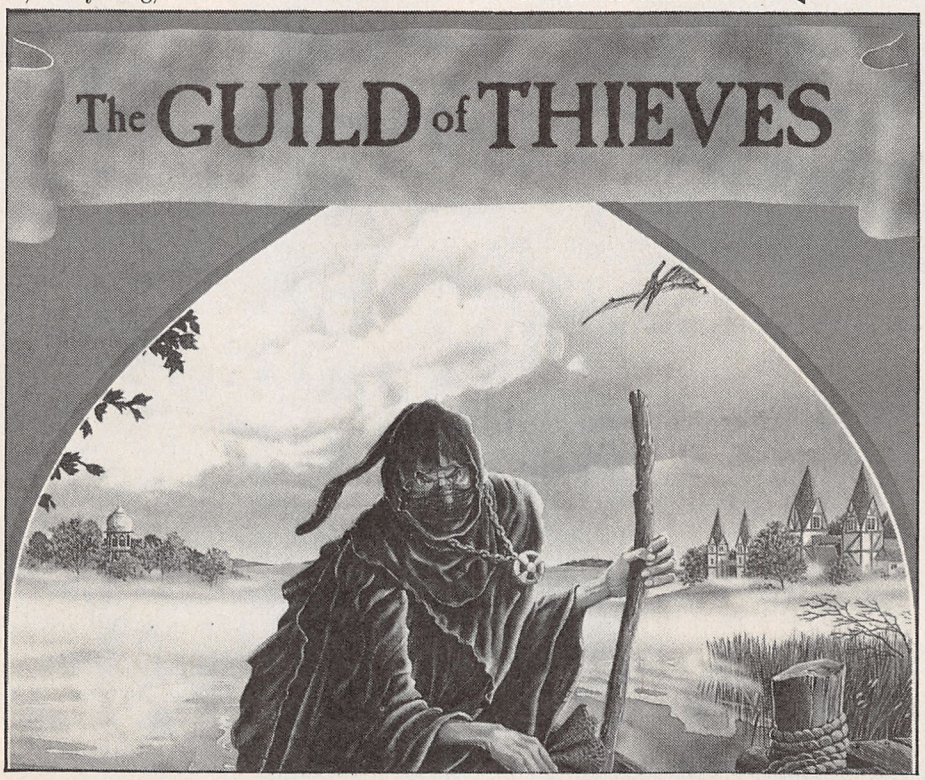
Rainbird's game a steal

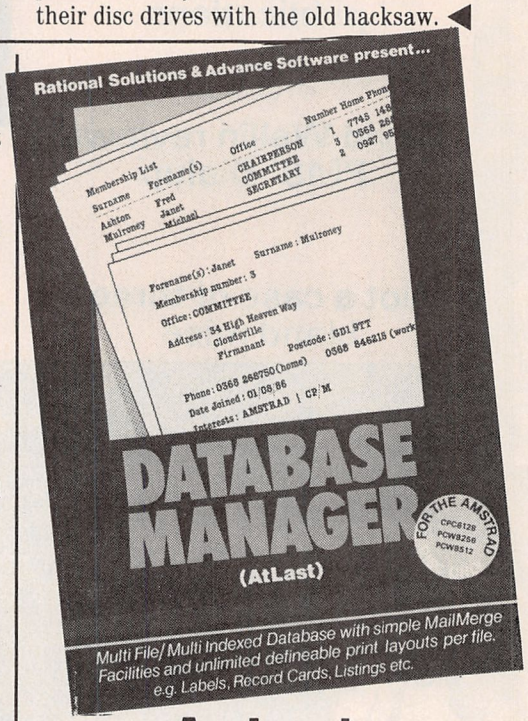
Rainbird's follow-up to the phenomenally successful **The Pawn is shortly to be available on the PCW.**

The Guild of Thieves, written by Magnetic Scrolls, features the same incredibly sophisticated text interpretation system as The Pawn, but has a few extra features. The Go To command allows you to proceed to any accessible location you have visited before, while Find Object does the same for artifacts.

The graphics, while limited to the PCW's green-and-black, retain the sophistication of The Pawn, while the plot is, if anything, even more fiendish. As an apprentice thief in the land of Kerovnia, it is your task to loot an island stronghold and bank your ill-gotten gains. That's when your problems start; the bank, being just as dishonest as you are, refuses to return the loot.

Supplied in the usual jewelled Rainbird packaging, complete with Guild membership certificate, *What Burglar* magazine and credit card, Guild of Thieves looks about to set new standards in PCW adventuring; and, as Magnetic S rolls femme fatale Anita Sinclair promised at the press launch, "it's got a sense of humour, but it's the sort that even reviewers can understand". ◀





At last!

Advance Software's **At Last Database Manager** has now been released in a combined CPC/PCW package.

The program is a fully relational database offering up to 10 fields of information for up to 32000 records of 2000 characters each. Full menus and on-screen prompts are designed to make operating the system easy, and a built-in word processor allows explanatory text and data fields to be positioned anywhere on the forms.

Nine field types are available, each of which checks date entered to ensure that it is of the correct form.

Since the program runs under CP/M, data can be transferred via ASCII porting routines.

Contact Advance at 17 Staple Tye, Harlow, Middlesex, Essex CM18 7LX. ◀

Stick with it

Euromax's invasion of the joystick market has now penetrated as far as the PCW. The company's latest products include a joystick interface and an unusual "joycard" controller.

The interface and joycard are available at £18.95 together, or separately at £5.95 and £13.95.

The joystick interface, which plugs into the expansion port on the back of the monitor, is claimed to be compatible with all games software released since Christmas 1986. The joycard – known as "Wizcard" – is a credit-card sized hand-held controller featuring two fire buttons and a thumb-operated four-directional controller pad.

The interface can also be used with most conventional joysticks featuring the Atari-type D-plug. Also available from Euromax is an autofire joystick for the CPCs, the Elite at £17.45. To overcome the problems of equipment damage often associated with heavy use of auto-fire joysticks, Euromax is also offering an Auto-fire Interface at £8.95. The interface is switchable, and can also be used as a mouse interface.

Contact Euromax at Pinfold Lane, Bridlington, North Humberside YO16 5FR, 0262 601006. ◀

Cheetah's MK5 MIDI keyboard and mini-interface are now available for the Amstrad CPCs. Full review coming soon.

Music non-stop

DHCP's range of music products has now been expanded to include PCW versions of programs already established on the CPCs.

The 8-Track MIDI Sequencer for the PCW is now available at £124.95 including a hardware interface. In the planning stage is a 16-track version taking advantage of the PCW's extra memory.

The various sound editing packages for the Casio CZ-101, 1000 and 230S, and for the Korg DW6000, have now been made available in versions compatible with the EMR MIDI interface and RAM Music Machine for the CPCs. Prices are £34.95 on disc or £29.95 on tape.

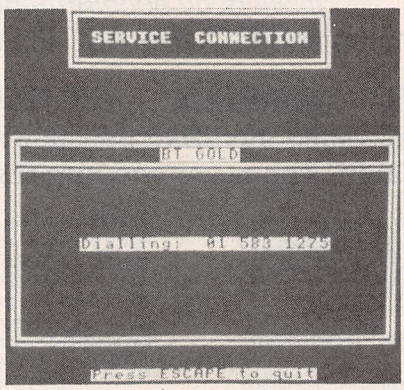
On the way is a Yamaha DX100 voice editor for the CPCs, and further in the future music hardware and software for the Amstrad and other PCs. Contact DHCP at 32 Boyton Close, Haverhill, Suffolk CB9 0DZ, 0440 61207. ◀

Dial A for Amstrad

Though the Amstrad PCW is sold as a word processor with business applications available, little is said about the communications side of it. It is in fact an excellent machine for comms., though Amstrad should have included an RS232 port of some sort; instead it is necessary to fork out money for an interface as well as for a modem. This brings the price up by at least £40.

MAIL232.COM, on side one of the systems disc, is useless; it offers no real facilities, thus the user must fork out for a piece of communications software as well. One of the latest pieces available is *Dialup Personal*, from PMS.

PMS is not as well known as the current two market leaders in PCW communications software; SageSoft with the user friendly CHITCHAT software, and Margolis and Co. with the very powerful COMM+. It's not easy to compete with either program. Both will give a little change out of £80 but are very good programs. With Dialup, you may be able to buy a pint with the change from £95. But is the software worth that much? Firstly, I should point out that the version of



STRUGGLING TO FIND AN RS-232 CABLE LONG ENOUGH TO SUIT HIM, DAVID WALLIN LOOKS AT PMS' DIALUP COMMS PACKAGE

ChitChat with both Prestel and ASCII emulation in fact costs £99, and it's this version that should be compared with Dialup.

The first thing I noticed when I got the package (software, manual and cable) was a big plastic box in the middle of the RS232 cable, 60 × 30 × 15mm. I decided to undo the four screws and look inside. Black plastic had been melted over a circuit inside the box and all I could do was notice the shapes of a couple of resistors and capacitors. Odd, I thought and put it back together. I wondered if when I turned the computer on, it would identify itself along with the other peripherals connected when I booted up CP/M. Nothing at all. Incidentally, the cable suffers from the usual manufacturer's "I'm-going-to-be-a-pain-and-force-the-modem-to-be-within-2-feet-of-the-computer" syndrome. Yes, the cable was as usual far too short (about one foot left after it had gone round the computer).

Typing in DIALUP loaded the program and displayed a title and copyright screen. Four modem services (Prestel, Prestel Business Review (Prestel again), MicroNet (Prestel again!!) and Microlink were in the centre of the screen with the options; 'Connect', 'Amend', 'Create', 'Utility', 'Exit' below. The left and right cursor keys selected one of these options and ENTER activated it.

THE DATABASE MANAGER (AtLast)

The Database Manager offers a unique combination of powerful flexibility, huge data capacity (subject to disc size) and simplicity of use. Clubs, schools, businesses, charities and individuals can all find applications for the Database Manager which would be difficult or impossible with other database programs.

WHAT THE REVIEWS SAY

AtLast's manual will be a major selling point, since it is rare for a "budget" package to have such a large and well produced one as this . . . superb value for money and hard to pick holes in. 8000 Plus

Powerful features . . . quite easy to use . . . as clever as the user makes it. Amstrad Professional Computing

For £30 you won't find a more powerful database . . . If you're new to the world of files, fields and records then AtLast is the ideal way to be introduced. The manual is light reading for the beginner. Amstrad Action

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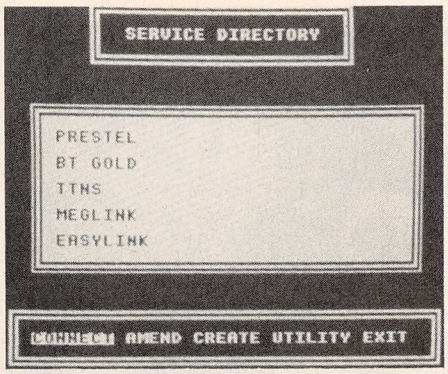


Firstly, I went to amend. I was then asked to select the service I wished to amend - I needed to change Prestel to my local call number, and add my customer ID logon sequence. Another menu with the options; 'Edit', 'Save', 'Delete', 'Exit' appeared. Obviously I wanted to edit the service details, so I selected edit. This was easy and menu driven and I soon had it done. The EXIT key returned to the main menu.

I selected Exit and connected to the service from the menu. It started to dial, 618 not the 92 455400 I had put in. Returning, I realised that I should have gone to Save and not exit. This I consider to be wrong; Exit should save automatically and there should be an abort option.

Logon data

The modem dialled and I was connected. Prestel - a viewdata service - sends one page at a time. My ID was sent OK and so was my password, but when the first frame appeared, most of the previous screen asking for my password was still there. Where there should have been a space, there was the previous character. It was possible to use the program, but I had to clear the screen at my end (EXIT - 7) every time. A quick look at the additional information concerning the Amstrad PCW version unveiled the following;

2. Viewdata logon sequence my cause frame corruption.

(NB: This will be corrected in the next release).

Corruption was right, but silly me, I was wrong not the software. PMS explain that the solution is to enter the logon data with the keyboard (using a macro if you wish) rather than trying to use an auto logon routine.

Back to the main menu, I used MicroLink - success. Not one problem at all. I turned the printer echo on and off, saved files to disc, cleared the screen and sent a break character which broke the line. I attempted to redial, but I was presented with a message telling me that I had not got the cable connected. I ensured that the cable was fully inserted and tried again.

No problems - the cable is obviously a very clever idea to prevent piracy. The software will not operate without the special "dongled" cable. However, since many users are now operating internal modems, this function of the cable is due to be deleted from future releases.

The Utility menu has the options; 'File', 'Frame', 'Printer', 'Modem', 'Exit'. File lets you Directory, rename, delete and copy and that's it. There's no text editor at all that I could find, which is very disappointing. It means using another program to create your E-Mail offline. The Frame option lets you view or print Prestel frames. Some are supplied for demo and all in all, the facility is good; it's a shame I could not really get to use Prestel myself properly. Printer lets you select whether line feeds are needed, and whether form feeds should be filtered or not. Finally, modem allows you to select what type of modem you have. PMS seems to have some preference for Miracle Technology as the list includes their WS range and all PMS' adverts show the WS range. Unfortunately, I use PACE modems, and they were only catered for under the general heading of Hayes modems. But it worked fine.

The manual deserves a mention; it's large, but covers all versions of the software. A sheet includes details of the peculiarities of the PCW version. An annoying one is the lack of an on-screen clock, which other versions have. A function key list is supplied on a card which can be placed along the top of the keyboard.

Strangely, it has F1→F0 (total of 10) on it, yet there are only eight function keys on the PCW. I soon discovered that you had to press EXIT, followed by the numeric key that you wanted to use, not the function key as stated in the manual.

Also available is a schools version; preconfigured for various educational services.

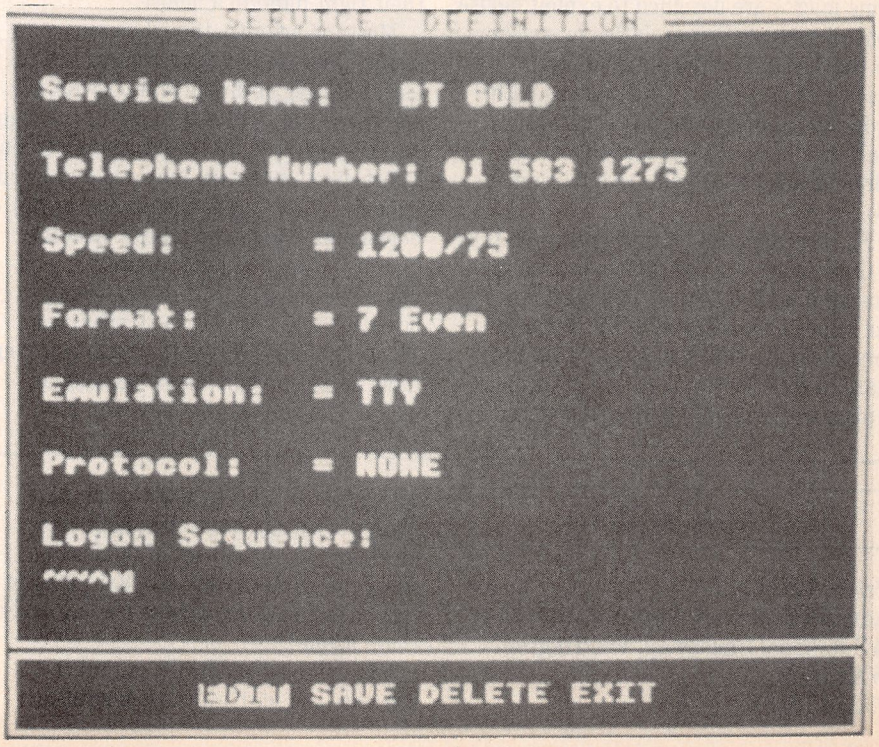
The program is good value, priced lower than the Prestel and E-Mail version of ChitChat, and it offers more features; not as many as COMM+, but then it keeps the user friendliness of ChitChat. Dialup offers emulations of Viewdata, TTY, VT52, TTNS and Dialup - ChitChat only has two. Also, download in Xmodem, Kermit, Dialup and CET for viewdata systems is provided. ChitChat has none of these - though it does have a simple text editor.

Top of the pile

Generally, so long as Viewdata emulation is perfected, I would say that Dialup earns a place at the top of the pile of PCW comms. software. It offers the user friendliness of ChitChat, with much of the power of COMM+.

Finally, a request to all modem manufacturers - can you please make the RS232 leads longer; it would not cost much. With a PCW, the printer lead is short and the printer must go on the right of the computer (as you look at it), therefore the modem needs to go on the left, but all the RS232 cables hardly reach far enough - please note! ◀

Product Dialup Comms Software
Micro Amstrad PCW
Price £89.95 inc. VAT; educational version £91.94
Supplier PMS Communications, Norfolk House, Smallbrook Queensway, Birmingham B5 4LJ, 021-643 7688



Three nice mice

PCW MICE CAN OFFER MAC-LIKE SOPHISTICATION ON THE HUMBLE JOYCE. PAUL SVARSKY COMPARES SYSTEMS FROM AMS, KEMPSTON AND ELECTRIC STUDIO

What's in a mouse? Contrary to popular belief, not all mice are born equal, and while few of them are actually (dirty) rats, if you're determined to use one of these trendy control devices with your PCW, it's vital that you find the one that's best suited to your requirements.

The problem lies in the fact that while some micros are designed to exploit mouse control, rodents were relative late comers on the Joyce. That means that while Macs, STs and even PC1512s come with programs or operating software which make the most of their mice, PCW versions need to provide an environment too.

So, why a mouse? Anybody who feels as if their fingers are as supple as breakfast sausages while typing, particularly on the far right of the keyboard will welcome a control device that gets away from the maze of functions and cursors. But touch-typists will probably prefer to keep their fingers tapping away than have to move their right hand to a mouse.

Most importantly though, a mouse should give the non-technically minded user a feeling of direct contact with the screen, so that any movement of the right hand is mirrored by the cursor on screen. There are two factors that make or break a mouse, then. One is the quality of the peripheral, which should run smoothly and have the minimum number of well-placed buttons, so that its ergonomics don't get in the way of easy operation. The other is the software, because if you have to learn a whole new package to exploit the mouse, you may well be overcoming the object of the exercise.

Unluckily there's no one PCW mouse that meets all the criteria required of a fully fledged mouse. For a start, you can't use any of them with the word processor that most Joyce owners use, Locoscript. It's a pity because all those drop down menu-windows and cursors are ideally suited to this form of selection.

Instead you'll have to use your mouse with CP/M programs or, in one case, primarily as the controller for a single art package. But before we look at the tale of the three (blind?) mice, a mention for an invaluable extra peripheral.

Nothing slows down a mouse more than dirt on its tracker ball. The best way to avoid this is to always use a smooth, easily cleaned Mouse Mat. Overbase produces one of the best we've ever seen for only £5.99. Contact them at 1st Floor, Trace's Buildings, Conway Street, Birkenhead, Wirral L41 3JB (051-647 8981). Advert over.

AMX MOUSE

Price: £79.95
Advanced Memory Systems, 166–170 Wilderspool Causeway, Warrington WA4 6QA
0925-413501

Of all the mice available, the AMX comes closest to the Macintosh ideal. That's on account of its desktop software, which lets your £400 micro do a fair imitation of a machine costing several times as much.

The secret of a desktop is that it presents you with all those horrible technical features, such as disk directories and the like, in easily understood icon form. If you want to erase a file you don't need to mess around in CP/M with the ERA command. Instead you place the cursor on the file, keep the select button pressed, and drag the icon over to the trash can.

The only point at which this simplification slips up is the omission of a double check, of the 'Are you sure? Y/N' variety. With irreversible operations it's often a good idea to make them just that little more difficult to complete.

AMX Desktop is a true WIMP environment, which means that there are Windows, Icons and Menus and a Pointer, Selecting a function, usually with a simple double click of the left-hand button, brings up a window on-screen, and this can be moved around or enlarged, or it can have other windows laid across it, though you won't be able to use it again until they've been cleared.

The windows all use a standard form, clearly explained in the well illustrated manual, with a box to close them in the top left hand corner, and small arrows at the corner to scroll the contents. Spend a while playing with this and you'll begin to dream of Macs!

The mouse also controls a text editor, which is used in conjunction with the program's diary, memos and address book. There are also jotters to store ideas, for pasting into other documents at a later date. All of these programs are fully supported with print options, so that you can produce hard copy of your daily appointments, for example, then generate all those memos that will make other people's lives a misery, from a variety of templates.

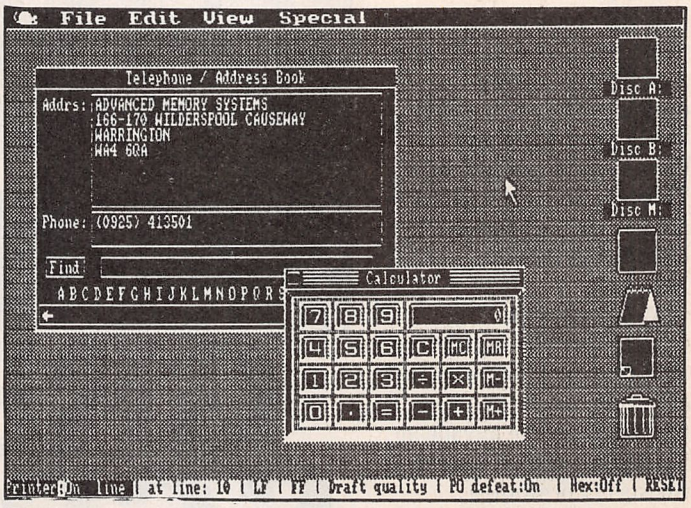
The top of the desktop contains a series of utilities which are contained on menus. These range from editing and disc management, including simple movement and copying of files, to a series of desk accessories. If you want a calculator you just need to move the pointer around the keys of this graphically illustrated one. There's even an alarm clock which you can use to buzz you just before that big meeting.

It's quite easy to get carried away with AMX Desktop, but it's also important to recognise its shortcomings. The biggest of these is that you can't refer to its features from inside another program, which would at least double its value. Unless you need the desktop, per se, it could just become a highly attractive executive toy.

There are also several features referred to in the manual that don't appear in this version 1, including the GSX graphics driver and the ability to format discs from within the program. Presumably AMS intends to implement them as soon as possible, and regarding the GSX, promises a free upgrade for genuine users.

The other reservation about this package is the mouse itself. It feels rather lightweight. We also found that on some services the movement of the tracker ball is somewhat erratic, which can be annoying if you're trying to move the cursor quickly from A to B.

However the desktop is a joy to behold, and AMS is promising further software later in the year, including a desk-top publishing package. If it lives up to this first program, it will be a joy to use. ◀



AMX's desktop WIMP display

KEMPSTON MOUSE/+ WRITE HAND MAN

Price: £69.95/£89.95
Kempston Data Limited, 22 Linford Forum, Rockingham Drive, Linford Wood, Milton Keynes MK14 6LY
0908-690018

There are no such reservations about the quality of the Kempston mouse. It not only looks a hardier beastie, it also performs better when you take it out for a road test. Also, unlike the AMX offering, it uses a standard Atari D plug, which adds a degree of standardisation.

What Kempston can't offer is the glorious graphics of the desk-top. Instead they've chosen to convert Hi-Soft's time honoured **Write Hand Man** for mouse control.

There's nothing actually wrong with WHM, and in this version the instructions have been cleaned up, though they're still likely to frighten the techno-phobe at a distance of twenty paces.

The great advantage is that WHM's a concurrent utility, which means that it sits quietly on top of a CP/M program until you summon it up with a press on both mouse buttons.

You can then make use of its facilities while WordStar goes to sleep on the rest of the screen. That's the theory at least, though there could be instances when a program wants to use the same areas of memory as WHM. It won't work with Locoscript, either.

On the whole, the WHM utilities aren't so immediately attractive as the AMX ones. There's a notepad, phonebook, diary and calendar, but they lack the sophistication of the true desktop's. Advanced and ambitious users will find useful features though, such as a keys macro editor, which lets you assign a string of instructions to one key press or a function key, or a hex calculator. There's also an ASCII table and a simulated multi-task facility, Swap, which lets you run a second program while the first is still resident.

Hi-Soft has even gone so far as to include instructions to get you started writing your own applications, and that is, in many ways, symptomatic of the package's approach. The Kempston mouse is probably best suited to somebody who is already fairly well up in the world of CP/M, or who wants to use it as a controller for a program such as **Fleet Street Editor Plus,** from Mirrorsoft, with which it's compatible. ◀

ELECTRIC STUDIO MOUSE AND GRAPHICS PROGRAM

Price: £129.95
The Electric Studio, 13 The Business Centre, Avenue One, Letchworth Garden City, Herts SG6 2HB
0462-895720

The Electric Studio's package, actually manufactured by Nidd Valley, is the odd-mouse out here, for while it may be used with other products, it's mainly intended as a replacement for the light pen with the highly regarded **Art** program.

This menu driven graphics package is a superb piece of software, providing an excellent combination of lines and regular shapes plus free-hand drawing. There are also 55 fill patterns which can be applied in a variety of modes, from brush to spray.

The one reservation that some people have had about it is that the light pen can be difficult to use for precision work, because it's difficult to hold it steady against the vertical screen. The mouse, which is a sturdy model, using the Atari plug, is much easier to use. However the package is relatively expensive, which may restrict it to the more serious graphics user. ◀

GREEN SCREEN SCENE

GAMES ON THE PCW PROGRESS BY LEAPS AND BOUNDS. CHRIS JENKINS LOOKS AT A SELECTION OF ARCADE AND ADVENTURE TITLES

They all said it couldn't be done, but games titles on the PCW have progressed from the merely distracting – Space Invaders clones and chess simulators – to full-blown arcade titles and adventures which wouldn't look out of place on any (monochrome) games machine.

Many PCW games are still conversions of titles designed for other machines, and seem poor in comparison due to the restricted sound and lack of colour. However, this hardly matters for a text-only adventure such as Infocom's **Moonmist.**

Widely regarded as the best producers of text adventures around – the nearest challenger being Magnetic Scrolls with **The Pawn** and the forthcoming **Guild of Thieves** – Infocom's games are now gaining better UK distribution through Activision.

Moonmist is an introductory level adventure with the usual high standard of Infocom packaging. The freebies this time include an illustrated booklet, Legendary Ghosts of Cornwall; a guidebook to haunted Tresyllian Castle; a series of letters; plus an iron-on Moonmist transfer.

As you might have gathered, the game is set in a castle in Cornwall, where your friend Tamara is being menaced by the spectre of the White Lady. Is the ghost real, or is some impostor trying to scare off the inhabitants of the castle to gain access to the hidden treasure?

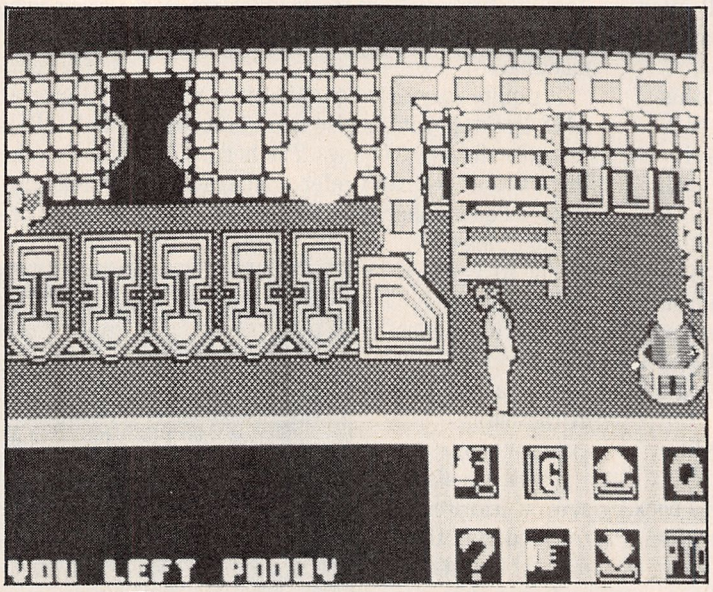
There are four game variations, selected by stating your favourite colour when challenged by the sinister butler.

Although the parser is powerful, all too often the response is "I don't recognise that word" or "I don't understand".

Without the benefit of graphics, all but the most hardened text-only adventurers will soon get bogged down. Nice packaging though – look at **The Guild of Thieves** if a more advanced parser and graphics turn you on.

For arcade gamers the choice and quality of PCW games are both improving.

Bounder, Gremlin Graphics' big hit on the CBM 64, Spectrum and other formats, has been successfully converted to the PCW, although of course the striking music and colourful graphics have gone by the board.



Bounder presents an aerial view of a surreal landscape made up of platforms, mountains, and barriers. Through this bounces an animated tennis ball, controlled by keyboard or Cascade joystick interface.

Whirling monsters threaten to burst you, while secret squares can award extra lives or bounces. The aim is to complete each level in as few bounces as possible, though to be honest I haven't yet got further than Level Two. Good fun, though a little slow in places.

Excellent value for money is Design Design's **Distractions** three-game pack at £19.95. All titles are arcade adventures, though each has a different approach. **2112 AD,** for instance, is presented in a form of pseudo 3-D by which your player can move in and out of the screen as well as to left or right. Accompanied by a robotic dog, your mission is to regain control of a renegade computer by finding ROM cards scattered around the complex.

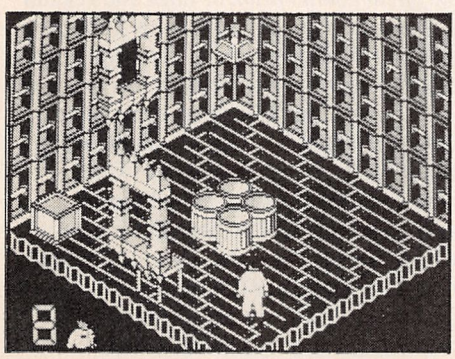
To the lower right of the display is a message screen, while to the right is an icon menu allowing you to change control functions such as Get, Drop and Use objects.

Next along is **N.E.X.O.R.,** an Ultimate-type perspective arcade adventure involving finding blueprints, turning on matter transmitters and escaping from a complex before alien invaders arrive. Depending on pixel-perfect jumps and runs, N.E.X.O.R. is certainly the best of the three games.

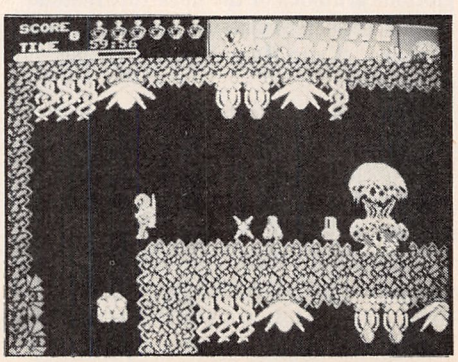
Least ambitious is **On The Run,** if only because it's resolutely two-dimensional. The plot, though, is more of the same; recover six flasks of chemicals from within a dangerous maze avoiding flying aliens and gnashing teeth, searching out magic mushrooms (?!!) for extra energy.

Excellent value for money overall, with a good standard of programming, though a little more variation in the type of game would have been welcome.

All that seems to be missing from the PCW's games library is a really good shoot-'em-up. The best contender so far is CRL's **Tau Ceti,** although this uses wire-frame graphics and has a large element of strategy and mapping. If someone can come up with a good **Uridium**-type sprite-based zapper, I for one will be eternally grateful! ◀



N.E.X.O.R., above centre 2112 AD



On the Run

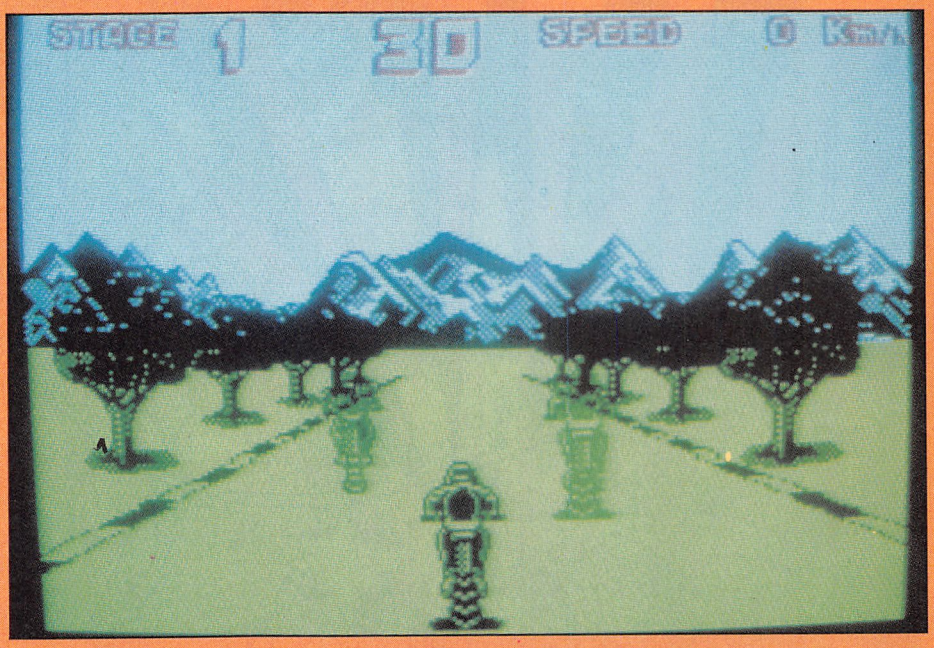
MELBOURNE HOUSE

AVAILABLE FOR: SPECTRUM £7.95 — CBM CASSETTE £8.95 — CBM DISK £14.95

ARNOLD AT PLAY

IS THE CPC GAMES MARKET BEING DOMINATED BY CONVERSIONS, LICENCES AND BUDGETS? CLIVE HARVEY SUSPECTS SO . . .

ENDURO RACER



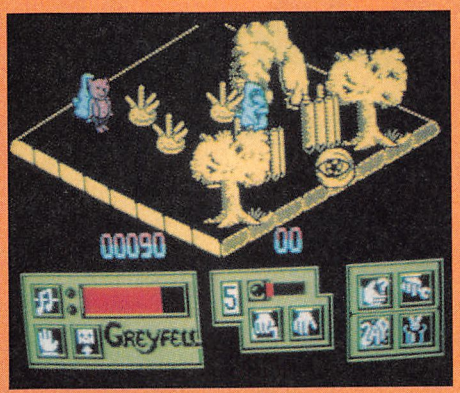
Somebody for whom we accept no responsibility recently called the Spectrum version of Activision's **Enduro Racer** "the best coin-op conversion", after too many pints of Theakston's Old Peculiar at lunchtime. The Amstrad version – curiously similar to the Spectrum in its use of single-colour sprites – is entertaining, but hardly a classic.

Descended from any number of racing games starting from **Pole Position,** Enduro Racer is a motorbike simulator with joystick or keyboard control. The track curves and dips realistically as you zoom along, but less realistic are the "wheelies" you can pull to jump over obstacles; these usually end up with you flying over the handlebars, to which you miraculously hang on when you come in for a landing.

Although using the brakes (fire button), throttles and steering allows you to avoid other riders, trees, rocks, jeeps and so on, there isn't a great deal of excitement to encourage you to race through all five landscapes.

Enduro Racer is a competent but unexciting coin-op conversion which if anything merely emphasises the lack of new ideas in the games market. ◀

GREYFELL



Greyfell is one of the three debut titles from ex-Beyond celebrity Francis Lee's new Starlight label. It is not an auspicious debut.

Based firmly on the tradition of Ultimate-style perspective arcade adventures, Greyfell has undistinguished graphics and incredibly slow gameplay. The plot – usual thing – casts you as a suspiciously porcine cat, Norman, questing through the magical land of Greyfell looking for his lost balls. Sorry – that should read "orbs". Norman may not be the butchest of adventurers, but there's no evidence that he's had the snip yet.

The scenery – much of which consists of screens containing such delights as a couple of trees – is matched in blandness only by the sprite design.

Norman can lash out of the sundry rats, wolves, killer tomatoes and dragons which guard the hidden Orb, and can also use magic spells against them. These are selected from an icon menu which is accessed by pressing the fire button whilst stationary.

The inventory box shows which objects you have discovered, and other icons can be selected to allow you to use objects to pick locks, open doors and so on.

Poisonous traps, meteorities, flying arrows and so forth add to the complexity.

Your game position can be saved in memory so that you can restart at any point achieved once you have lost all your lives. There isn't, however, a tape save.

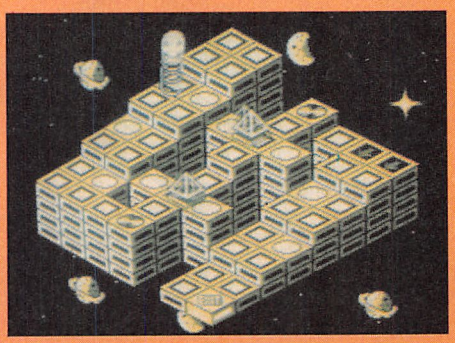
Pretty familiar stuff. Overall Greyfell shows such a lack of original thought that it can't really be recommended; what's the point of launching a new software company with such a derivative game? ◀

PARABOLA

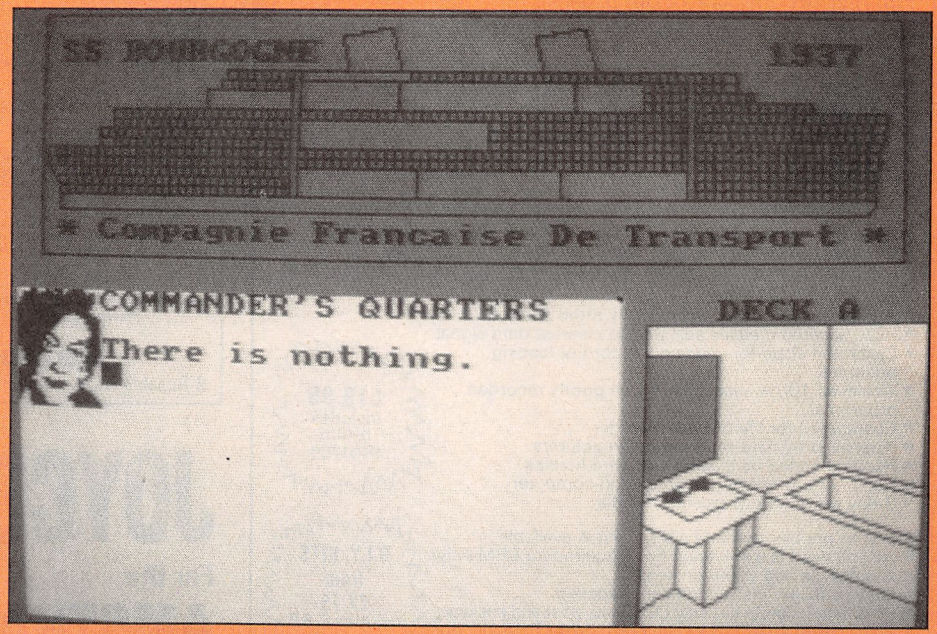
Firebird's Parabola is one of the nicest-looking Amstrad budget games I've seen for some time. A cross between **Q*Bert** and **Bobby Bearing,** it consists of a series of monochromatic ziggurats made up of several different types of block.

Around these bounces the hero, a spring-equipped service droid searching for the exit from each grid.

You can solve the grids in any order you choose, selecting them from the start-up menu, but on each one you must collect rotating energy disks before you reach the exit. Blocking your way are pyramidical guards, direction changing blocks, trampolines and pits. Leaping too high results in Bouncing Bruce shattering on landing, an unpleasant experience at the best of times.



MURDER ON THE ATLANTIC



In the packaging of many American adventures you will find all sorts of exciting enhancements to the atmosphere of the game, such as a piece of belly-button fluff, a small bar of soap, a certificate declaring you to be a Grade One Cretin and a plea to buy the sequel, **Big Jobbie in Tinsel Town.**

Infogrames' **Murder On The Atlantic** is one of the few games where the bumf with the packaging is actually well-produced, interesting, and necessary to solve the mystery.

The game is a joystick-driven adventure in which you investigate a murder aboard an ocean liner.

The suspects are depicted by charming digitised pictures, and the graphics of the ship locations and floor plans are quite good, although the action of the game is a little slow due to the large amounts of Basic used.

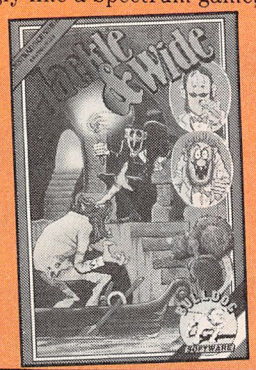
Moving around the decks, searching rooms for objects, questioning passengers, and sorting through the vast amount of documentation is a fascinating businesss. Included are reproduction newspapers, letters, timetables, coded telegrams, photographs, blackmail notes, and physical evidence such as a cartridge case, ink, and a piece of cord.

Everything is designed in authentic 1930's style and adds immeasurably to the enjoyment of the game.

The one annoyance is the necessity of loading passengers' statements from tape one at a time – a constriction which doesn't effect disc users. Otherwise, Murder On The Atlantic is a fascinating challenge which should appeal to anyone bored of run-of-the-mill arcade or adventure games. ◀

JACKLE & WIDE

Mastertronics' **Jackle & Wide** suffers, like **Enduro Racer,** from looking unnervingly like a Spectrum game, with monochromatic backgrounds and characters. However, at least it has a refeshingly off-the-wall scenario.



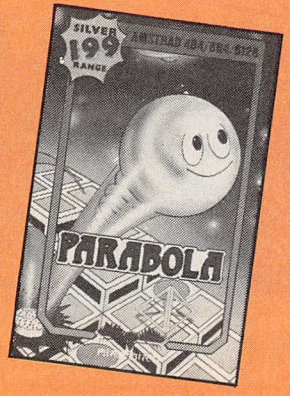
Silly Dr Jackle has tested his personality altering potion on himself, and as a result has been transformed into the disgusting Mr Wide.

This fat barrel of lard must trundle around Hyde Park on a bicycle, entering underground stations and investigating sewers, in search of the laboratory of his rival, the only man who may be able to provide the antidote.

Puzzles along the way include impenetrable undergrowth (which can be cut through if you know how), intelligent guardians and a decreasing energy rate (which, again, can be controlled if you can deduce the method).

Although Jackle & Wide is just more of the usual jump/fire/collect/avoid/map business, at £2.99 it's at least more acceptable than some full-price efforts which offer little more. ◀

Nice clean graphics, decent sound effects and challenging gameplay contribute to make Parabola a good couple of quids worth. Joystick control seemed dodgy on the review copy; but perhaps our joystick has just been sat on once too often.



One of the better recent Amstrad budget games titles. ◀

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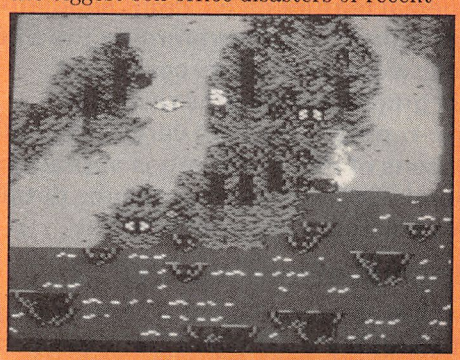

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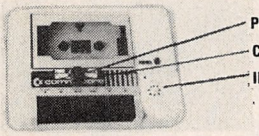

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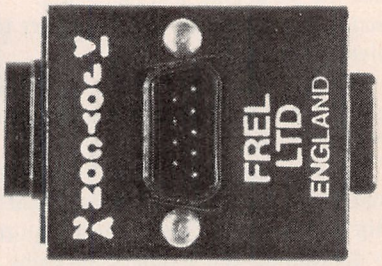

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Life on the BBC

Iain Tatch

This program is a machine code implementation of that old favourite, Life.

From the main menu pages the screen can be altered, saved or loaded, or the game started. When editing a screen, *Return* is used to place a cell and *Space* to remove it.

After running the listing enter *Call &5000* to start.

```
>
  10FORT=0TO2STEP2
  20P%=&5000
  30[OPTT
  40.life
  50LDX#init MOD256:LDY#init DIV256:JSR
print
  51JSRsto
  52LDX#1:LDY#0:LDA#4:JSR&FFF4
  55LDA#220:LDX#255:LDY#0:JSR&FFF4
  59.start JSRcon
  60LDX#fscr MOD256:LDY#fscr DIV256:JSR
print
  70LDX#ASC"1":LDY#ASC"6":JSRget1
  80SEC:SBC#49:CLC:ASLA:TAY
  90LDAtbl,Y:STA&70:LDAtbl+1,Y:STA&71
  95JMP(&70)
 100.edit LDA#12:JSR&FFEE:JSRrec
 110LDA#20:STAcx:LDA#10:STAcy
 115.edloop
 120LDA#31:JSR&FFEE:LDAcx:JSR&FFEE:LDAc
y:JSR&FFEE
 130JSR&FFE0:CMP#27:BEQstart
 140CMP#13:BNEnrt
 150LDA#0:STA&80:LDA#&77:STA&81
 151LDAcx:CLC:ADC&80:STA&80
 152LDA&81:ADC#0:STA&81
 153JSRt40
 154LDA&80:CLC:ADC&82:STA&80
 156LDA&81:ADC&83:STA&81
 157LDY#0:LDA#ASC"O":STA(&80),Y
 158LDA&81:CLC:ADC#5:STA&81
 159LDY#0:LDA#ASC"O":STA(&80),Y
 160JMPedloop
 170.nrt CMP#32:BNEnsp
 180LDA#0:STA&80:LDA#&77:STA&81
 181LDAcx:CLC:ADC&80:STA&80
 182LDA&81:ADC#0:STA&81:JSRt40
 183LDA&80:CLC:ADC&82:STA&80
 184LDA&81:ADC&83:STA&81
 185LDY#0:LDA#32:STA(&80),Y
 186LDA&81:CLC:ADC#5:STA&81
 187LDY#0:LDA#32:STA(&80),Y
 188JMPedloop
 189.nsp
 190CMP#139:BNEnup
 200LDAcy:CMP#1:BEQnup
 210DECcy:JMPedloop:.nup
 220CMP#138:BNEndn
 230LDAcy:CMP#23:BEQndn
 240INCcy:JMPedloop:.ndn
 250CMP#136:BNEnlt
 260LDAcx:BEQlz
 270DECcx:JMPedloop
 280.lz LDAcy:CMP#1:BEQnlt
 290LDA#39:STAcx:DECcy:JMPedloop
 300.nlt CMP#137:BEQrt:JMPedloop
 310.rt LDAcx:CMP#39:BEQrz
 320INCcx:JMPedloop:.rz
 330LDAcy:CMP#23:BEQng
 340LDA#0:STAcx:INCcy
 350.ng JMPedloop
 360.cls LDX#cc MOD256:LDY#cc DIV256:JS
Rprint
 370JSR&FFE0
 380CMP#ASC"Y":BEQcs:JMPstart
 390.cs LDA#12:JSR&FFEE:JSRsto:JMPstart
 400.run JSRcoff:JSRrec:.rgo
 410LDA#&28:STA&80:LDA#&77:STA&81
 420.rloop LDY#0:LDA(&80),Y
 430CMP#32:BEQspce:JMPo
 440.spce JSRsrnd:LDA&7F:CMP#3
 450BEQnew1:JMPupdt
 460.new1 LDA&81:CLC:ADC#5:STA&81
 470LDY#0:LDA#ASC"O":STA(&80),Y
 480LDA&81:SEC:SBC#5:STA&81
 490.updt LDA&80:CLC:ADC#1:STA&80
 500LDA&81:ADC#0:STA&81:CMP#&7F:BNEover
 510LDA&80:CMP#&98:BNEover
 520JSRsto
 530LDA#129:LDY#&FF:LDX#&8F:JSR&FFF4
 535CPY#&FF:BNEov
 540JMPstart:.ov JMPrgo
 550.over JMPrloop
 560.o JSRsrnd:LDA&7F:CMP#2:BMIded
 570CMP#4:BPLded
 580JMPupdt
 590.ded LDA&81:CLC:ADC#5:STA&81
 600LDY#0:LDA#32:STA(&80),Y
 610LDA&81:SEC:SBC#5:STA&81:JMPupdt
 620.save JSRgtfnm
 630JSRgood:BCCgos:JMPstart:.gos
 640LDY#7:LDA#32:.salp
 650STAsf,Y:DEY:BNEsalp
 660LDY#0:.slp
 670LDAfnm,Y:CMP#13:BEQslx
 680STAsf,Y:INY:JMPslp
 690.slx LDX#sved MOD256:LDY#sved DIV25
6:JSR&FFF7:JMPstart
 700.load JSRgtfnm
 710JSRgood:BCCgos2:JMPstart:.gos2
 720LDY#7:LDA#32:.lalp
 730STAlf,Y:DEY:BNElalp
 740LDY#0:.llp
 750LDAfnm,Y:CMP#13:BEQllx
 760STAlf,Y:INY:JMPllp
 770.llx LDX#ldd MOD256:LDY#ldd DIV256:
JSR&FFF7:JMPstart
 780.end LDX#es MOD256:LDY#es DIV256:JS
Rprint
 790JSR&FFE0:CMP#ASC"Y":BEQfins
 800JMPstart:.fins
 810LDX#finish MOD256:LDY#finish DIV256
:JMPprint
 999RTS
1000.print STX&70:STY&71
1010LDY#0:.prloop
1020LDA(&70),Y:CMP#255:BEQprout
1030JSR&FFE3:INY:BNEprloop
1040.prout RTS
1050.get1 STX&70:INY:STY&71
1060.g11 JSR&FFE0:BCSerr
1070BPLok:SBC#128:.ok
1080CMP&70:BMIg11
1090CMP&71:BPLg11
1100RTS
1110.err LDA#&7E:JSR&FFF4:JMPg11
1120.sto LDY#0:.rl1
1130LDA&7C00,Y:STA&7700,Y
1140LDA&7D00,Y:STA&7800,Y
1150LDA&7E00,Y:STA&7900,Y
1160LDA&7F00,Y:STA&7A00,Y
1170INY:BNErl1:RTS
1200.rec
1210LDY#0:.sl1
1220LDA&7700,Y:STA&7C00,Y
1230LDA&7800,Y:STA&7D00,Y
1240LDA&7900,Y:STA&7E00,Y
1250LDA&7A00,Y:STA&7F00,Y
1260INY:BNEsl1:RTS
1300.t40 LDA#0:STA&83:LDAcy:STA&82
1310CLC:ROL&82:ROL&83:CLC:ROL&82:ROL&83
1320LDA&82:STA&84:LDA&83:STA&85
1330LDX#9:.add
1340LDA&82:CLC:ADC&84:STA&82
1350LDA&83:ADC&85:STA&83
1360DEX:BNEadd
1370RTS
1400.srnd
1410LDA#0:STA&7F
1420LDA&80:SEC:SBC#41:STA&82:LDA&81:SBC
#0:STA&83
1430JSRchek
1440LDA&82:CLC:ADC#1:STA&82:LDA&83:ADC#
0:STA&83
1450JSRchek
1460LDA&82:CLC:ADC#1:STA&82:LDA&83:ADC#
0:STA&83
1470JSRchek
1480LDA&82:CLC:ADC#38:STA&82:LDA&83:ADC
#0:STA&83
```

continued on page 40 ▶

PROGRAMMING: BBC B

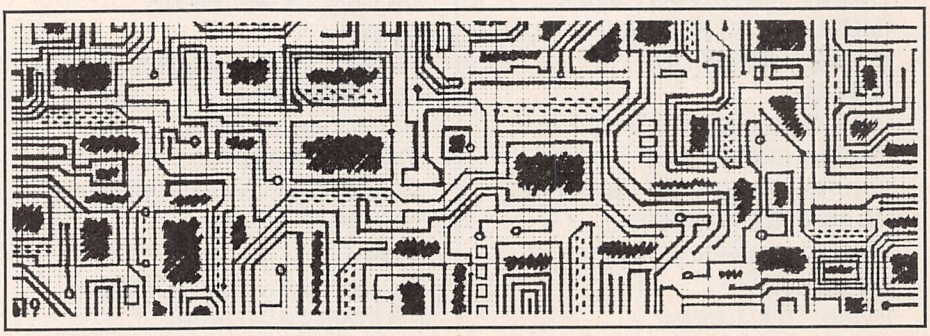
◀ continued from page 39

```
 1490JSRchek
 1500LDA&82:CLC:ADC#2:STA&82:LDA&83:ADC#
0:STA&83
 1510JSRchek
 1520LDA&82:CLC:ADC#38:STA&82:LDA&83:ADC
#0:STA&83
 1530JSRchek
 1540LDA&82:CLC:ADC#1:STA&82:LDA&83:ADC#
0:STA&83
 1550JSRchek
 1560LDA&82:CLC:ADC#1:STA&82:LDA&83:ADC#
0:STA&83
 1570.chek LDY#0
 1580LDA(&82),Y:CMP#ASC"O"
 1590BNEchex
 1600INC&7F:.chex RTS
 1610.gtfnm
 1620LDX#gt1 MOD256:LDY#gt1 DIV256:JSRpr
int
 1630LDX#inp MOD256:LDY#inp DIV256:LDA#0
:JMP&FFF1
 1640.good LDX#gst MOD256:LDY#gst DIV256
:JSRprint
 1650JSR&FFE0:CMP#ASC"Y":CLC:BEQret
 16555EC
 1660LDA#0:.ret RTS
 1670.coff LDA#23:JSR&FFEE:LDA#1:JSR&FFE
E:LDA#0
 1680LDY#9:.cfl JSR&FFEE:DEY:BNEcfl:RTS
 1690.con LDA#23:JSR&FFEE:LDA#1:JSR&FFEE
:JSR&FFEE
 1700LDA#0:LDY#8:.col JSR&FFEE:DEY:BNEco
l:RTS
10000.init EQUB22:EQUB7:EQUB255
10010.fscr EQUB12:EQUB31:EQUB14:EQUB0:EQ
UB131:EQUB141:EQUB157:EQUB129:EQUS"LIFE
 ":EQUB156
10020EQUB31:EQUB14:EQUB1:EQUB131:EQUB141
:EQUB157:EQUB129:EQUS"LIFE  ":EQUB156
10030EQUB13:EQUB13:EQUB13
10040EQUB134:EQUS"1 ... Enter/edit scree
n"
10050EQUB13:EQUB13:EQUB134:EQUS"2 ... Cl
ear screen"
10060EQUB13:EQUB13:EQUB134:EQUS"3 ... Ru
n":EQUB131:EQUS"Life"
10070EQUB13:EQUB13:EQUB134:EQUS"4 ... Sa
ve screen"
10080EQUB13:EQUB13:EQUB134:EQUS"5 ... Lo
ad screen"
10090EQUB13:EQUB13:EQUB134:EQUS"6 ... Fi
nish game"
10100EQUB13:EQUB13:EQUB13
10110EQUB131:EQUS"Please enter choice: "
:EQUB255
10120.tbl EQUWedit:EQUWcls:EQUWrun:EQUWs
ave:EQUWload:EQUWend
10130.cx EQUB0:.cy EQUB0
10140.cc EQUB12:EQUB7:EQUB13:EQUB13:EQUB
13:EQUB13:EQUS"Clear screen - are you s
ure (Y/N) ? ":EQUB255
10150.fnm EQUS"       ":EQUB13
10160.sved EQUS"SAVE "
10170.sf EQUS"        7700 +400":EQUB13
10180.ldd EQUS"LOAD "
10190.lf EQUS"       ":EQUB13
10200.gt1 EQUB13:EQUB13:EQUB13:EQUS"Ent
er filename ]":EQUB255
10210.inp EQUWfnm:EQUB7:EQUB33:EQUB126
10220.gst EQUB13:EQUB13:EQUS"Is this OK
 (Y/N) ?":EQUB255
10230.es EQUB13:EQUB13:EQUB13:EQUS"Do y
ou really want to finish (Y/N) ?":EQUB25
5
10240.finish EQUB22:EQUB7:EQUB7:EQUS"Th
e program has now finished.":EQUB255
30000]NEXT
```

PROGRAMMING: AMSTRAD CPC

Xen 3

Simon T Goodwin



This two part program for Amstrad CPC micros adds a further 14 commands to Basic, in the same fashion as Xen and Xen Plus. Each line of data has a checksum, thus making it easier to locate errors. However using this system it is important to type in the listing exactly as printed. The machine code can be saved as a binary file by typing *SAVE "code",b,39000,1600.*

The new commands are:

:HELP

Lists the new commands.

:SCRAMBLE,start address,length

Scrambles a block of memory so as to make it unreadable and thus protect it from hackers or would-be pirates.

:UNSCRAMBLE,start address,length

Unscramble a block of memory that has been previously scrambled.

a$="text"=:TWOTONE,@a$,colour1, colour2

This is a variation of double-height printing that allows text to be shown in two colours, giving a satisfying effect.

:FLASHON

Creates a spectacular flashing border effect.

:FLASHOFF

Reverts the border to normal.

:FILL,start address,length,byte

Fills a block of memory with the specified byte. This works very rapidly and gives a good effect when used on screen memory eg; *:FILL,49152,16384,127.*

:LINESCROLL,row

Scrolls an individual screen row to the left by one screen byte. This can be used to create smooth scrolling text.

:CRT,horizontal display,horizontal sync-,vertical display,vertical sync

This sounds very technical and indeed it is. Among other things it allows the user to change the size of the screen border eg; *:CRT,40,46,25,33.* The best effects are gained through experimentation, but if you get into difficulties *:CRT,40,46,25,30* reverts the screen to normal.

:BANKSWITCH,bank configuration

6128 users only. This provides an easy way of moving banks of RAM around. There are four possible configurations (four to seven). Each one moves one of the four extra 16k banks to address £4000. Typing *:BANKSWITCH,0* revert memory to normal. Note, do not experiment with configurations one, two or three.

```
10 REM --------------------------------
20 REM -  A further extension to XEN  -
30 REM -    By Simon.T.Goodwin 1987   -
40 REM --------------------------------
50 REM
55 SYMBOL AFTER 32
60 MEMORY 38999
70 linenumber=210:address=39000
80 FOR n=1 TO 184
90 count=0
100 FOR i=0 TO 7
110 READ a$:POKE address,VAL("&"+a$)
120 address=address+1
130 count=count+VAL("&"+a$)
140 NEXT i
150 READ check$:check=VAL("&"+check$)
160 IF count<>check THEN PRINT "Error in
 line";linenumber:END
170 linenumber=linenumber+10
180 NEXT n
190 CALL 39000:PRINT "Initialised"
200 END
210 DATA 01,12,9B,21,D5,9A,CD,D1,3DC
220 DATA BC,C9,FE,04,C2,C1,9A,01,4A5
230 DATA 01,BC,ED,49,04,DD,4E,06,328
240 DATA ED,49,05,0E,02,ED,49,04,285
250 DATA DD,4E,04,ED,49,05,0E,06,27E
260 DATA ED,49,04,DD,4E,02,ED,49,39D
270 DATA 05,0E,07,ED,49,04,DD,4E,27F
280 DATA 00,ED,49,C9,21,CA,9A,CD,451
290 DATA E6,BC,C9,21,CA,9A,C3,E3,596
300 DATA BC,06,7F,0E,10,ED,5F,E6,391
310 DATA 0F,F6,40,ED,49,ED,79,C9,4AA
320 DATA FE,03,C2,C1,9A,DD,6E,04,46D
330 DATA DD,66,05,DD,7E,00,DD,46,3C6
340 DATA 03,DD,4E,02,F5,77,23,78,337
350 DATA B1,28,04,F1,0B,18,F5,F1,3D7
360 DATA C9,FE,03,C2,C1,9A,CD,93,547
370 DATA BB,32,9B,9B,DD,5E,04,DD,43F
380 DATA 56,05,1A,47,13,1A,6F,13,16B
390 DATA 1A,67,DD,7E,00,32,B4,9B,35D
400 DATA DD,7E,02,32,B5,9B,7E,C5,422
410 DATA E5,CD,0B,99,E1,C1,23,10,42B
420 DATA F5,3A,9B,9B,CD,90,BB,C9,546
430 DATA CD,A5,BB,11,9C,9B,06,0B,383
440 DATA CD,06,B9,7E,F5,CD,09,B9,48E
450 DATA F1,12,23,13,10,F2,06,0B,249
460 DATA 21,9C,9B,11,A4,9B,7E,12,338
470 DATA 13,12,13,23,10,F8,3E,FE,29F
480 DATA 21,A4,9B,CD,A8,BB,3E,FF,4CD
490 DATA 21,AC,9B,CD,A8,BB,3A,B4,486
500 DATA 9B,CD,90,BB,3E,FE,CD,5A,516
510 DATA BB,3E,0A,CD,5A,BB,3E,0B,32B
520 DATA CD,5A,BB,3A,B5,9B,CD,90,4C9
530 DATA BB,3E,FF,CD,5A,BB,3E,0B,423
540 DATA CD,5A,BB,C9,3E,0D,CD,5A,41D
550 DATA BB,3E,0A,CD,5A,BB,C9,21,3CF
560 DATA E3,9A,06,15,CD,C3,99,CD,48E
570 DATA 64,99,06,19,CD,C3,99,CD,412
580 DATA 64,99,CD,64,99,21,3E,9B,3C1
590 DATA E5,D5,C5,CD,B9,99,C1,D1,630
600 DATA E1,3E,00,32,B7,9B,7E,FE,41F
610 DATA FF,28,1D,FE,5B,38,09,F5,3D3
620 DATA 3E,01,32,B7,9B,F1,D6,B0,40A
630 DATA CD,5A,BB,3A,B7,9B,FE,01,46D
640 DATA 20,03,CD,64,99,23,18,D0,2FB
650 DATA C9,3E,42,CD,1E,BB,C8,CD,484
660 DATA 06,BB,C9,7E,CD,5A,BB,23,40D
670 DATA 10,F9,C9,FE,01,C2,C1,9A,4EE
680 DATA DD,7E,00,32,B6,9B,21,B0,3AF
690 DATA BF,11,50,00,3A,B6,9B,47,2F2
700 DATA 19,10,FD,11,00,C0,06,08,205
710 DATA C5,E5,D1,23,01,4F,00,1A,30B
720 DATA ED,B0,12,01,B0,07,09,C1,331
730 DATA 10,EE,3D,C9,3E,41,21,BB,35C
740 DATA 9B,F5,E5,CD,A8,BB,E1,F1,677
750 DATA 3C,01,0B,00,09,FE,5B,20,1C7
760 DATA F0,3E,30,21,BB,9C,F5,E5,47D
770 DATA CD,A8,BB,E1,F1,3C,01,0B,447
780 DATA 00,09,FE,3A,20,F0,3E,61,2F0
790 DATA 21,DB,9C,F5,E5,CD,A8,BB,59F
800 DATA E1,F1,3C,01,0B,00,09,FE,31E
810 DATA 7B,20,F0,C9,FE,02,C2,C1,4D7
820 DATA 9A,DD,6E,02,DD,66,03,DD,40A
830 DATA 4E,00,DD,46,01,7E,C6,32,2E8
840 DATA 77,23,0B,78,B1,20,F6,C9,3AD
850 DATA FE,02,C2,C1,9A,DD,6E,02,46A
860 DATA DD,66,03,DD,4E,00,DD,46,394
870 DATA 01,16,32,7E,92,77,23,0B,1FE
880 DATA 78,B1,20,F7,C9,FE,01,C2,4CA
890 DATA C1,9A,DD,7E,00,CD,5B,BD,49B
900 DATA C9,21,89,9A,0E,FC,CD,16,3FA
910 DATA BD,3E,C9,32,CB,BC,11,40,3CE
920 DATA 00,21,FF,AB,DF,97,9A,06,3E1
930 DATA C0,C9,3E,C3,32,F1,BD,21,48B
940 DATA AB,9A,7D,32,F2,BD,7C,32,451
950 DATA F3,BD,C9,CD,5A,BB,0E,01,46A
960 DATA C9,3E,C3,32,F1,BD,3E,35,41D
970 DATA 32,F2,BD,3E,0B,32,F3,BD,409
980 DATA C9,21,D9,9A,06,0A,CD,C3,3FD
990 DATA 99,C9,00,00,00,00,00,B1,1E3
```


Micromon

P A Fairclough

Micromon goes into its second week with more of the listing and instructions. Micromon is a multi-function machine code programming utility.

F – Fill.

Format : *F addr,addr,value*

Fill will fill a specified block of memory with a value.

G – Go.

Format : *G addr*

Go will execute a machine code program commencing from and address or from the PC.

H – Hunt.

Format : *H addr,addr,data*

Hunt will search through a specified block of memory for specific data, displaying any addresses where a match is found.

The data may be up to 23 hexadecimal values or a string of up to 67 characters.

I – Interpret.

Format : *I addr*

or *I addr,addr*

Interpret will display all C64 Ascii characters in their printable form.

eg Ascii 13, RETURN, shows up as a reversed M.

Any character may be changed by typing over the old character and pressing Return. Any Ascii character display definition may be used except for Return (reversed M). This is because characters are accepted until Return is encountered.

NB. Some Ascii codes have the same definition and therefore might not be entered as the code you require! Spaces after the last character are ignored. Use Shift and Space instead.

K – Kill Breakpoint.

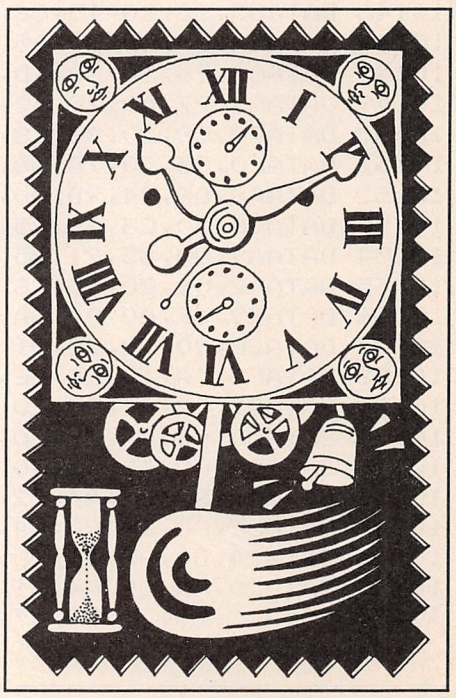
Format : *K*

Kill will remove the breakpoint assigned by the *'B'* command.

L – Load.

Format : *L "filename",device,addr*

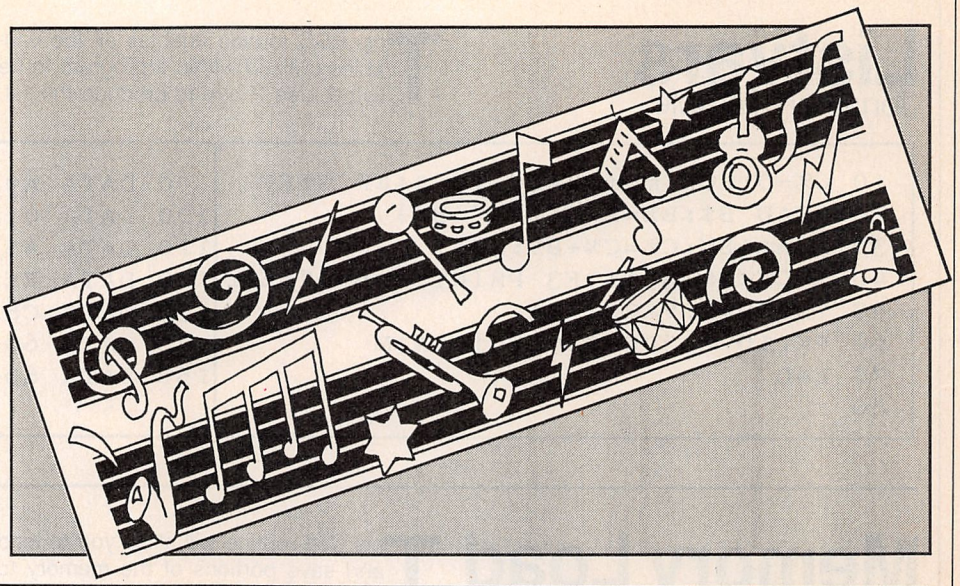
Load will load a specified file from a device into memory.



```
10107 DATA20,7D,C3,A9,25,A2,3A,20,810
10108 DATAA1,C8,A5,1E,20,72,C9,A9,1072
10109 DATA22,A2,20,20,A1,C8,A5,1E,816
10110 DATA20,42,C4,A9,22,4C,E4,C0,993
10111 DATA20,84,C3,A2,14,20,DE,C0,987
10112 DATACA,10,FA,60,20,A8,C3,AA,1129
10113 DATAE8,D0,01,C8,98,20,91,C3,1165
10114 DATA8A,86,1D,20,92,C8,A6,1D,874
10115 DATA60,A5,20,49,FF,49,FF,20,981
10116 DATAA7,C3,85,C1,84,C2,60,38,1166
10117 DATAA4,C2,AA,10,01,88,65,C1,975
10118 DATA90,01,C8,60,20,48,CC,A8,917
10119 DATA4A,90,0B,4A,B0,17,C9,22,737
10120 DATAF0,13,29,07,09,80,4A,AA,688
10121 DATABD,63,CE,B0,04,4A,4A,4A,896
10122 DATA4A,29,0F,D0,04,A0,80,A9,799
10123 DATA00,AA,BD,A7,CE,85,29,29,947
10124 DATA03,85,20,98,29,8F,AA,98,826
10125 DATAA0,03,E0,8A,F0,0C,4A,90,995
10126 DATA09,4A,4A,09,20,88,D0,FA,792
10127 DATA60,C8,88,D0,F1,60,20,AF,1184
10128 DATAC4,A6,28,D0,18,20,8C,C1,999
10129 DATA90,13,A5,19,C9,49,D0,05,840
10130 DATA20,20,C4,30,03,20,EF,C8,782
10131 DATA20,E1,FF,D0,E4,4C,E3,C2,1445
10132 DATA20,E2,C0,A9,27,20,88,C8,1026
10133 DATAA9,22,A2,20,20,A1,C8,A0,950
10134 DATA0F,20,48,CC,20,42,C4,20,649
10135 DATA2F,C9,88,10,F4,A2,0A,4C,892
10136 DATA7D,C3,A2,7E,C9,FF,F0,06,1310
10137 DATAC9,7F,D0,05,A2,DF,8A,D0,1272
10138 DATA10,C9,20,90,08,C9,80,90,874
10139 DATA08,C9,A0,B0,04,09,40,85,755
10140 DATAC7,20,E4,C0,A2,01,86,D4,1160
10141 DATACA,86,C7,60,20,70,C8,A9,1144
10142 DATA00,85,20,20,1D,C6,F0,07,671
10143 DATA20,0F,C9,E6,20,D0,F4,A5,1127
10144 DATA20,F0,05,A9,3A,4C,FC,C5,1029
10145 DATA4C,97,C0,20,70,C8,A9,00,932
10146 DATA85,20,20,15,C6,F0,FB,C9,1108
10147 DATA22,D0,ED,20,15,C6,20,14,782
10148 DATAC9,E6,20,20,1D,C6,D0,F6,1176
10149 DATAA9,27,A0,22,4C,FE,C5,20,961
10150 DATA70,C8,20,83,C8,20,1D,C6,934
10151 DATAF0,03,20,78,C8,4C,E2,C0,1089
10152 DATAA8,A9,24,9D,00,02,E8,98,916
10153 DATA60,20,C3,C8,85,C3,86,C4,1181
10154 DATAA9,00,85,21,85,22,85,C1,828
10155 DATAA2,02,20,15,C6,F0,F9,38,960
10156 DATAE9,3F,A0,04,0A,0A,0A,0A,500
10157 DATA2E,00,02,2E,01,02,88,10,249
10158 DATAF6,CA,10,E6,0E,00,02,2E,756
10159 DATA01,02,A2,02,20,CF,FF,C9,862
10160 DATA0D,F0,4B,C9,20,F0,F5,C9,1247
10161 DATA3A,F0,43,C9,30,90,26,C9,997
10162 DATA47,B0,22,A4,22,D0,08,20,727
10163 DATA8C,CC,20,C0,C4,D0,E0,C0,1388
10164 DATA24,D0,05,20,DC,C8,B0,03,880
10165 DATA20,AA,C9,A4,C1,84,C2,85,1219
10166 DATAC1,E6,21,D0,C7,C9,24,F0,1340
10167 DATA0B,C9,25,F0,07,C9,22,D0,939
10168 DATA07,20,EF,CC,85,22,A9,24,854
10169 DATA9D,00,02,E8,D0,AE,86,25,944
10170 DATAA2,00,86,28,A2,00,86,1E,662
10171 DATAA5,28,20,B7,C3,A6,29,86,956
10172 DATA26,AA,BD,01,CF,20,A3,C5,997
10173 DATABD,C1,CE,20,A3,C5,A2,05,1147
10174 DATAE0,02,D0,12,A4,20,F0,0E,902
10175 DATAA4,29,C0,E8,B0,1D,A4,21,1031
10176 DATAC4,20,90,02,D0,28,06,29,669
10177 DATA90,0E,BD,B5,CE,20,A3,C5,1126
10178 DATABD,BB,CE,F0,03,20,A3,C5,1217
10179 DATACA,10,D5,A5,25,C5,1E,F0,1100
10180 DATA1C,D0,0B,86,1D,A6,1E,DD,827
10181 DATA00,02,F0,0C,68,68,E6,28,732
10182 DATAF0,03,4C,54,C5,4C,92,C0,1014
10183 DATAE6,1E,A6,1D,60,20,B3,C8,962
10184 DATAA4,20,F0,2B,A5,26,C9,9D,1040
10185 DATAD0,1C,20,8C,C1,90,09,98,906
10186 DATAD0,E3,A6,24,30,DF,10,07,931
10187 DATAC8,D0,DA,A6,24,10,D6,CA,1260
10188 DATACA,8A,A4,20,D0,03,B9,C2,1126
10189 DATA00,20,7A,CC,88,D0,F7,A5,1114
10190 DATA28,20,7A,CC,20,E3,CB,20,892
10191 DATA99,C3,A9,41,A0,00,20,35,827
10192 DATAEB,A9,20,20,35,EB,20,23,823
10193 DATAC6,A9,20,20,35,EB,98,20,903
10194 DATA35,EB,4C,97,C0,20,1D,C6,966
10195 DATAF0,F8,C9,20,60,20,CF,FF,1311
10196 DATAC9,0D,60,A5,C2,20,2A,C6,941
10197 DATAA5,C1,48,4A,4A,4A,4A,20,758
10198 DATA35,C6,68,29,0F,20,AA,C8,813
10199 DATA4C,35,EB,20,C3,C8,85,0F,939
10200 DATA86,10,20,61,CC,85,13,84,767
10201 DATA11,84,12,C8,84,1A,20,C3,752
10202 DATAC8,85,11,86,12,4C,97,C0,921
10203 DATA68,85,05,08,68,29,EF,85,767
10204 DATA04,86,06,84,07,68,18,69,516
10205 DATA01,85,02,68,69,00,85,03,481
10206 DATAA9,80,85,15,D0,1E,78,D8,1025
10207 DATA85,05,86,06,84,07,68,85,654
10208 DATA04,68,85,02,68,85,03,20,515
10209 DATACF,C9,A5,0D,8D,18,03,A5,919
10210 DATA0E,8D,19,03,BA,86,08,58,599
10211 DATAAD,0D,DD,8D,0D,DD,A5,04,951
10212 DATA29,10,F0,03,4C,5A,C0,24,694
10213 DATA14,10,13,20,61,CC,85,13,540
10214 DATA20,6F,CC,24,14,50,05,85,621
10215 DATA14,4C,49,C7,85,14,24,15,578
10216 DATA50,18,A5,03,C5,10,D0,4E,771
10217 DATAA5,02,C5,0F,D0,48,A5,43,891
10218 DATAD0,42,A5,44,D0,3C,A9,80,1072
10219 DATA85,15,30,15,46,15,B0,03,493
10220 DATA4C,80,C0,A6,08,9A,AD,F3,1140
10221 DATACF,48,AD,F2,CF,48,4C,81,1178
10222 DATAC7,A5,02,A6,03,85,C1,86,995
10223 DATAC2,20,11,C3,20,E4,FF,F0,1193
10224 DATAFB,C9,03,D0,03,4C,97,C0,1085
10225 DATAC9,4A,D0,3D,A9,01,85,15,868
10226 DATAD0,37,C6,44,C6,43,AD,01,968
```

Screen Squash

Mick West



This week features the second half of Mick West's screen file compressor program for the Atari ST. Once run the program is capable of dealing with low, medium or high resolution files because it doesn't require the ST to be in that particular mode.

For a copy send £4.00, or £2.00 plus blank disc, to 48 Norman Street, Bingley, W Yorks BD16 4JT.

```
  {
    step=frames*2-2;
    colour=chunk=bit_no=chunk_pos=0;
    addr=frame*2-2;
    while(addr <= in_length)
    {
      bit=( in_array[addr] >> (7-bit_no) ) & 1;
      if (++bit_no==8)
      {
        bit_no=0;
        if (addr++ & 1) addr+=step;
      }
      if (bit==colour)
      {
        chunk+=1;
        if (chunk==max )
        {
          putchunk();
          chunk=0;
        }
      }
      else
      {
        putchunk();
        chunk=1;
        colour=bit;
      }
    }
    if (chunk) putchunk();
    out_array[++pos]=0;
    out_array[++pos]=0;
    out_array[++pos]=255;
    ++pos;
  }
  out_length=pos;
}
putchunk()
{
  out_array[pos] |= ( chunk << (length*chunk_pos));
  if ( (++chunk_pos * length) >= 8)
  {
    chunk_pos=0;
    out_array[++pos]=0;
  }
}
decode()
{
  int bit_pos,step;
  register int frame,colour,chunks,bit;
  frames = in_array[0];
  length = in_array[1];
  step   = frames*2-2;
  pos    = 7;
  chunks = 8/length;
  max    = (1 << length) - 1;
  for (frame=1;frame<=frames;frame++)
  {
    bit_pos = 0;
    colour  = 0;
    out_pos = frame*2-2;
    while(in_array[pos] || in_array[pos+1])
    {
      for (chunk_pos = 0; chunk_pos < chunks ; chunk_pos++)
      {
        chunk = ( in_array[pos] >> (length*chunk_pos) ) & max;
        if (chunk)
        {
          for (bit=1; bit <= chunk; bit++)
          {
            out_array[out_pos] |= colour << (7-bit_pos);
            if(++bit_pos == 8)
            {
              bit_pos=0;
              if (out_pos++ & 1) out_pos += step;
            }
          }
        }
        if (chunk < max) colour^=1;
      }
      pos++;
    }
    while ((in_array[pos++] & 255) != 255);
  }
  out_length = ( (in_array[5] & 255) << 8 ) + ( in_array[6] & 255 );
}
save()
{ button=form_alert(1,
    "[2][  Finished  -  Save to disk ?  ][Disk A|Disk B|Cancel]");
  if (button<3)
  {
    if (button==2) pathname[0]='B';
    else pathname[0]='A';
    error=handle=Fcreate(pathname,0);
    if (handle>=0)
    {
      error  = Fwrite(handle,out_length,out_array);
      handle = Fclose(handle);
      if (handle<0) error=handle;
    }
    if(error<0) form_alert(1,"[3][Cannot create output file][Cancel]");
  }
}
```

Listvars

Jonathan Temple

This BBC routine enables all the variables defined within a program to be listed. Use **Code* to produce the list. The program can be disabled with *Control-Break*, and enabled again with *?&200=0: ?&201=&A*.

```
10 C%=0:FOR mem=&A00 TO &A4F STEP4
20 READ B$:B%=EVAL("&"+B$)
30 !mem=B%:C%=C%+B%:NEXT
40 IFC%<>&335111F3 PRINT"Error":END
50 ?&200=0:?&201=&A
60 *K.10 ?&200=0:?&201=&A|M
70 END
80 :
90 DATA A949D098,A9A88582,20A98504
100 DATA 01A0FFE7,28F0A8B1,B188AB85
110 DATA A5AA85A8,EE204AA8,C801A0FF
120 DATA EE20AAB1,20F8D0FF,00A0FFE7
130 DATA C8AAAAB1,AA86AAB1,DFD0AB85
140 DATA 6918A8A5,90A88502,C9A9E602
150 DATA 60C3D0F6,00E3104C
```

Memory Load

Adam Wright

This C64 routine will allow you to load and save portions of the memory to either tape or disc.

The syntax for the load command is – *Sys 49152, "filename", start addr, device*

To save the block of memory use – *Sys 49193, "filename", start addr, end addr, device.*

```
0 REM MEMORY LOAD & SAVE
1 DATA 169,0,133,10,32,77,192,32
2 DATA 230,225,165,10,166,251,164,252
3 DATA 32,213,255,144,3,76,249,224
4 DATA 165,10,240,3,76,126,225,32
5 DATA 183,255,41,191,240,66,76,156
6 DATA 225,32,77,192,32,253,174,32
7 DATA 66,192,134,253,132,254,32,230
8 DATA 225,166,253,164,254,169,251,76
9 DATA 95,225,32,138,173,32,247,183
10 DATA 166,20,164,21,96,162,1,160
11 DATA 0,169,0,32,186,255,32,253
12 DATA 174,240,14,32,87,226,32,253
13 DATA 174,32,66,192,134,251,132,252
14 DATA 96,76,8,175
20 CK=0
30 ML=49152:MS=49193:FOR A=ML TO ML+107
40 READ D:POKE A,D:CK=CK+D:NEXT A
50 IF CK<>14745 THEN PRINT "ERROR":STOP
60 SYS MS,"MEML/S",49152,49260,01

READY.
```

Spritemove

Adam Wright

This C64 routine will position a defined sprite anywhere on the screen. The syntax of the command is as follows.

Sys 49152,sprite no (0–7), x co-ord (0–511), y co-ord (0–255).

```
0 REM SPRITE MOVE
1 DATA 32,91,192,201,0,176,3,76
2 DATA 72,178,201,8,144,3,76,72
3 DATA 178,133,250,32,91,192,192,2
4 DATA 144,3,76,72,178,133,251,132
5 DATA 252,32,91,192,192,0,240,3
6 DATA 76,72,178,166,252,224,1,168
7 DATA 165,250,72,8,169,0,56,42
8 DATA 198,250,24,16,250,170,13,16
9 DATA 208,141,16,208,40,176,7,138
10 DATA 77,16,208,141,16,208,104,10
11 DATA 170,165,251,157,0,208,152,157
12 DATA 1,208,96,32,253,174,32,138
13 DATA 173,32,247,183,165,20,164,21
14 DATA 96
20 SM=49152:CK=0:FOR A=SM TO SM+104
30 READ D:POKE A,D:CK=CK+D:NEXT A
40 IF CK<>12431 THENPRINT "ERROR":STOP
50 FOR A=0 TO 63:POKE12288+A,255:NEXT A
60 FOR A=0 TO 7:POKE 2040+A,192:POKE 532
87+A,7+A:NEXT A
70 POKE 53271,255:POKE 53277,255:POKE 53
269,255
80 S=INT(RND(1)*8):X=INT(RND(1)*320):Y=I
NT(RND(1)*256)
90 SYS 49152,S,X,Y:GOTO 80

READY.
```

We want your programs!!

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Just send your masterpieces in to **Duncan Evans, Technical Editor, Popular Computing Weekly, 12–13 Little Newport St, London WC2 7PP** and he'll assess them post haste.

Putting machine code into your C programs

Kenn Garroch continues his series on programming in C by explaining how to include sections of machine code in the programs.

One of the advantages of C is that it is possible to include machine code in the program. This is done with the inline command which takes constant values and includes them in the program. It then runs them as if they were machine code. If you look in your library files, you will probably find this done to provide functions that are machine dependent such as file and screen handling routines.

The easiest way to include a simple machine code routine is to define a set of constants at the beginning of the program that set up some machine code instructions. For example, in Z80:

```
#DEFINE LDHL OX2A
#DEFINE LDA OX3A
#DEFINE STA OX77
```

sets up a few useful commands. The #DEFINE is used before main() to define global constants and commonly used routines. You could enter #define CR printf("\N") and later in the program the command CR; will perform a carriage return (upper or lower case may depend on your compiler).

Definitions are available throughout the program and can be defined after the main(). The advantage of doing it before is that it is then simple to include the definition file as a header before the main program (#include head.lib for example). The value OX2A is the C way of defining a hexadecimal number and it is assigned to LDHL since this is the number which the X80 understands as load the HL registers from the address given by the data that follows. Similarly, LDA directly from memory is 3A hex, and STA using the address in HL is 77 hex. When 'inline' sees a parameter, if it is a byte long, it places it into a byte and if it is two bytes long, it uses two bytes. To form the definitions into a simple machine code program use 'inline' like this:

```
inline(
LDA, 0,
LDHL, !,
STA
);
```

This loads the accumulator with the contents of memory address zero, loads the HL registers from memory addresses 1 and 2, and then stores the accumulator using the address in HL.

'Inline' is unusual in that it can take any number of parameters. In technical terms, it is variadic (monadic is one parameter, diadic is two). Although the arguments have to be constant, it is possible to use variables if they are declared as static.

The static command makes variables last for the life of the program and makes sure they are never moved or overwritten which, is a good idea since C is compiled and any machine code set up at compilation time needs to know that any memory addresses it uses are going to stay where they are. To declare a byte location for use with 'inline', declare a 'static char' (1 byte of storage). To set up two bytes of storage, the variable type 'unsigned' (or its equivalent if your compiler doesn't support it) is used. This is a 16 bit variable which doesn't use the most significant bit as a sign (+ or –) as 'int' does. Again, it must be static or the compiler will not allow it to be used with 'inline'. Assuming that the definitions for the opcodes (numbers that the microprocessor interprets as instructions) have been set up, the following simple routine, to poke numbers into memory, can be defined.

```
poke(addr,n)
{
static unsigned loc;
static char val;
loc=(addr/256)+((addr%256)*256);
loc=addr;
val=n;
inline( LDA,&val, LDHL,&loc,STA );
```

If your machine uses a different processor, then the inline routine definitions will need to be different but the principle is the same. The two variable declarations at the start of the function set up some memory addresses for the machine code to use. The bit of maths on *addr* is needed to convert the address into the correct format for the Z80: a low byte followed by high byte for a 16 bit number (C uses the opposite). The % operation gives the remainder of a division (better known as MOD). The address is then assigned to loc which is the address to be poked. The value to be poked, n, is assigned to *val*. This reassignment is done to save the variables passed into the function being specially declared in the main body of the program and it also makes them local to the function (They can be declared differently outside but this won't affect their values in the function). The 'inline' command is then used to insert the machine code.

The machine code loads the Z80's accumulator from the address of *val* (the contents of the address and not the address itself). LDHL does the same from *loc* for the HL registers, and then STA stores the contents of the accumulator at the address currently held in HL.

The use of the & operator illustrates the way in which C variables are handled. When you assign one variable to another, what is really happening is that the contents of the addresses pointed to by the variable names are used for the transfer. A variable is only a name given to a specific address, not the actual value stored at that address. For example, if a 'char' variable A is declared (with char A;), the compiler assigns a byte of memory whose address is always referred to in the program, as A. Say the address was 1000. A, to the compiler, means a char variable called A whose data is stored at 1000. When a program assigns a value to A, such as A=10; then 10 is stored at memory location 1000. When the inline command is used, the machine code needs to know the address of the variable which can be found with & operator. Try the following short program:

```
main()
{
char A;
A=10;
printf("Contents=%d address=%d",A,&A);
}
```

This prints out 10, and the address (probably in signed format, -ve means its actual value is 65535 – the value printed).

It is necessary to bear in mind the way in which C deals with variables then using 'inline' since it can, sometimes, cause great confusion. Another thing to note is the lack of a return (RTS, RET, whatever) which C doesn't need. Some C compilers require any machine code programs to save various registers before using them. The best thing to do is shove all registers on the stack before starting the machine code, and then pull them all off again at the end.

Getting to grips with inline can be very useful if you need to perform some extra fast routines, or you need to access sections of the micro which C doesn't support. It is also one of the functions which makes C so portable.

Replies from the Prestel mailbox

David Wallin replies to readers' messages and queries that were left in his Prestel mailbox.

I've emptied my Prestel mailbox this week and here's a selection of the messages left and questions which needed answering.

P A Burgess, who goes under the name of Frodo, has given me some more information about his Spectrum Viewdata host software, called Firefly II, an upgraded version of Firefly.

The limitations of the 32 column Spectrum screen have been overcome and the full 40 characters of the viewdata system, along with full graphics, are supported. The software will work with any disc drive which is compatible with Interface One. In fact, all Interface One compatible peripherals will work with it.

In addition, the loading and saving routines are written in Basic and so if they don't work with your drive, it's just a matter of getting out the manual and changing a few lines. You can also write your own Basic software patches and link them up to the Firefly II. To run, a modem, connected through Interface One is needed. Those, such as the VTX5000, which operate through the edge connector will not work.

Shire Software, Frodo's company, is about to release a real-time clock card *with* an RS232 interface, which can be used in place of Interface One. Full details of the interface are not yet known, though I hope to receive a review copy of both the interface and the software at the time of launch. Frodo's Prestel mailbox number is 088349334.

In reply to Martin Reilly's request for a feature on how-to-do-it write-your-own-BB-Software, I may well do one for the BBC and maybe the Amstrad PCW in Mallard Basic, but not the minicomputers and multi-user super-micros you requested. I'm afraid that not many *Popular Computing Weekly* readers own multi-thousand pound, multi-user super-micros.

However, I will do something on writing BBS for smaller micros. If there are any people who have written BBS for more advanced micros and minicomputers then do contact Mr Reilly on Prestel Mailbox number 027622571.

According to Mr J Mallett, the PD BB (Public Domain Bulletin Board), on 0342-315636, won't answer the phone! As far as I know, it's a 24 hour bulletin board, though there could be a number of reasons why it was off-line. It could have closed down but I am fairly certain it has not. Being a board with a lot of download software (and believe me there is a lot of software in the Public Domain), the SYSOPs are likely to have to service the system regularly and to do so, it has to go off-line. This is unfortunate, but without forking out a few hundred pounds for another host computer, all updating has to be off-line.

Another common cause for a computer to be off-line is power cuts/surges. In some areas, these can be common and fatal to computers. A power surge may well wipe all the discs, and even blow some of the chips in the computer. With a power cut, the computer would turn off (unless it has battery backup supply, or like the London Underground – a generator) therefore it would be unable to answer the phone. When the power returns the problem is not over.

Most computers would not be capable of loading up the BBS and filling in the details such as the date, and sysop chat availability which are required for the software to run. Some computers can handle this, but most can't and therefore remain off-line till the sysop discovers what has happened.

Also, another problem is hackers. If a hacker breaks in, they can wipe all the discs and log off – simple. This has the catastrophic result of putting the board off-line, and erasing all un-backed up messages. I've known it to happen before. So try the board again.

If it still won't answer, assume it is off-line for one reason or another for a long time. Try ringing the number at three in the morning. If a phone is attached to the line and the sysop is just ignoring it durng the day, he may answer in the morning just to stop it ringing – you can now ask what's going on.

Next, Mr Mallett wants advice on converting an Amstrad V21/23 modem to autodial and answer. Don't! The modem is approved, but if you take it apart and mess around with it, its approval ends and its use becomes illegal. Also your guarantee instantly runs out. All I can tell you is that the Amstrad modem is a repackaged Pace modem and as far as I know it can't be converted to AA/AD. It would be cheaper and simpler to sell the modem second hand and buy a Pace Linnet, an Astracom AC100 or a Miracle Technology WS4000.

Second hand, the loss would be around £50, perhaps less if you are lucky. The cost of upgrading the modem if it is possible would be near that, your guarantee is gone, and you could receive a whacking great fine from BT. I'd steer clear from the idea.

Now on to a query from Mr P Murphy, regarding the Datec/Comshare 'PSS' style network run by Debenhams for connection to Telecom Gold. It appears that he is unclear as to what you type after the 'Which service?' prompt.

We went over this in *Popular*, February 5, but I shall explain again for those of you who missed it.

Having dialled the number of your local Datac/Comshare node, you are presented with the prompt: Which service?

In reply you may type one of two different answers. If you are using 300/300 baud, you type *CSA, and if you are using 1200/75, you type *CSB.

This is followed by a few (five or six) returns. Datec/Comshare should answer with the next prompt, which is 'Comshare'.

In reply to this you type the letter T, again followed by a few returns. If all is well, you will be met by the standard Telecom Gold Log-in Request Line: 'Telecom Gold Network: For assistance type 'Help Login' at the prompt 'Pad>'.

You have now accessed the Telecom Gold Network and must tell it which host computer you wish to use. If you don't know which it is, it can be found out from your mailbox number.

At the end of your number, there are between three and six numbers and before that three letters. The two numbers prior to the colon at the start are your system or host computer number. You now have to call up your host computer, with the command CALL aa (aa being your host computer number).

After being told, 'Please Sign On', you now give your ID (mailbox number) and password as always and you're logged on.

I must confess that I have not used the system recently and on receipt of Mr Murphy's question I dialled up. Even following my own instructions, I got it wrong the first time. It worked without the '*' part of the *CSB part. Anyway, it would be interesting to hear from others who use Datec/Comshare as I have heard that the system doesn't always run perfectly.

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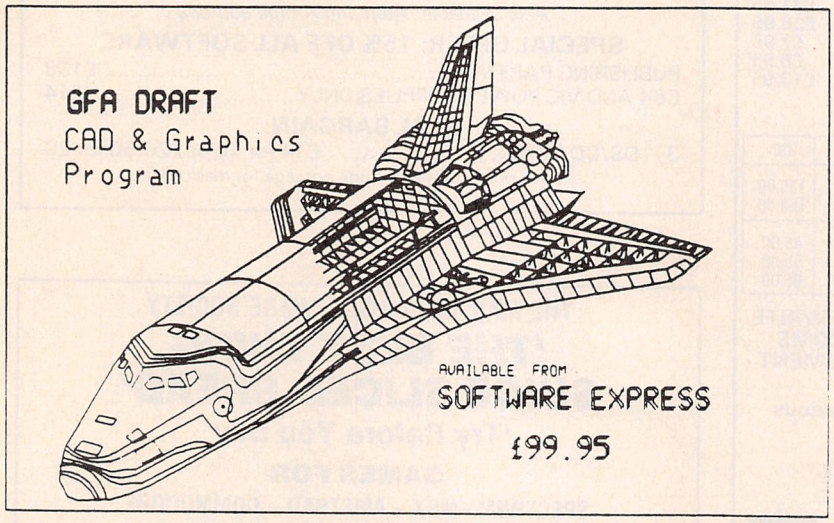

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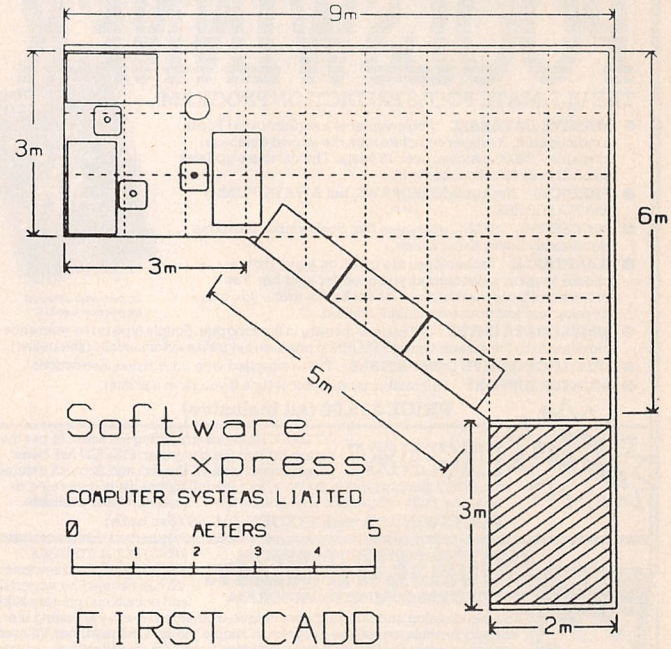

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LETTERS TO JENKINS

This week, Mark Jenkins answers readers' queries on micro music matters from whether there is a Barry Box for the Atari ST to the differences between passport and Siel-type interfaces.

"Although rates and levels should be standard throughout all Midi units, this is only the case with final output"

Since the postbag is bulging a little more than usual it seems as good a time as any to sort out a few assorted queries, questions and problems which have turned up over the last few weeks.

Phil White of Walsall is having problems running a program published in the American magazine, *Keyboard,* intended for the Commodore 64. The program as published should control Phil's Casio CZ101 or any other Midi synth via a Passport or compatible interface, the result being a series of Irish jigs (!). Alternative addresses are given for a Sequential 242 interface, but Phil is trying to run the whole caboodle on a Siel interface and although the program runs it will not control the synth.

Phil says that he's tried various control address changes with no luck, although he's successfully running the Joreth Editor for Casio patch creation on the Siel interface.

In fact, the Passport-type and Siel-type interfaces are substantially different, and most packages written for one type will not work on the other (try C-Lab on a Passport interface!).

Although rates and levels should be standard throughout all Midi units, this is only the case as regards the final output; there's no universal agreement as to how a computer interface should be addressed, and the different types of interfaces we've discussed are addressed in completely different ways even though they all fit into the C64's cartridge slot.

So unfortunately the answer to Phil's question is that he'll have to change a lot more than a few control addresses to make the program run. He could contact Rittor, the UK distributor of Passport, for more details on the way its interface needs to be addressed, or alternatively call *Keyboard*'s technical wizard Bob Doerschuck in the US.

On to a more hopeful item and Mike Harth of East London, who has an Amstrad PCW used as a word processor, a DK'Tronics Sound Controller to add music capabilities, and Ian Waugh's Sunshine Publications' book, *Making Music on the CPC.*

Cheetah's MK5 – a cheap way into Midi

Mike's problem is that he "can't add all the bits together", and in fact it is pretty difficult to get into programming sufficiently to get much out of the CPC's sound chip. But Mike says he's written songs for a couple of musicals, and so perhaps the solution is to go a little upmarket. Get hold of a DHCP or other interface, a Cheetah MK5 Midi keyboard (£99) and a couple of synth modules (the Yamaha FB-01 at £350 being the best bet) and you're away. Whether that constitutes the "easy answer" Mike's after is anyone's guess – let us know how you get on.

Graham Johnson was very taken with our mention of the Barry Box, a sampler/sound analyser for the BBC B, and wonders if there's an Atari ST version. In fact there are a couple of Atari samplers (apart from the multi-thousand pound Hybrid Arts ADAP system which Graham specifically excludes from his shopping list!) including one from Eidersoft. This doesn't have very advanced harmonic analysis capabilities but does have reasonable sampling performance – a full review of this and at least one other ST sampler in the near future.

Martin Sexton has a Yamaha DX100 synth, a Datel Midi interface and a Commodore 64 – a very sensible combination. He says he'd like some software to "drive the DX", presumably meaning a sequencer package, and Steinberg's *Pro-16* (which has an optional notation package for music transcription) or C-Lab's *Supertrack* are good bets, although unfortunately costing around £100 from music shops.

Martin would also like to drive the C64's sound chip from the DX, which isn't really on at the moment. The Rainbird *Advanced Music System* is intended for the internal sound chip but has very limited Midi capabilities, so if anyone out there knows of a really good Midi package which will also use the Sid chip, please let us know.

Coming up in the near future – the Yamaha TX81Z and Roland Alpha Juno 2 Editors from Soundbits, whose FB-01 Editor I enthused about a few weeks ago; the new Hybrid Technology Music 4000 keyboard for the Music 5000 voice module on the BBC; the UMI 3S, a cheap Midi interface for the BBC B derived from the UMI 2B; the Amstrad version of Cheetah's MK5 Midi keyboard and interface; news of Yamaha's CX5 MSX music computer; *Gen Patch,* the ultimate patch filing system for the ST; Amstrad software from DHCP; and much more!

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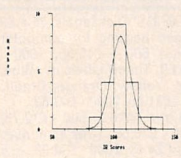

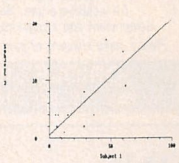

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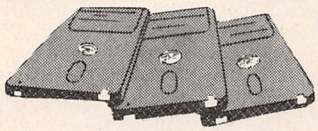

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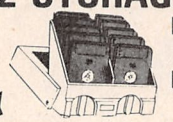

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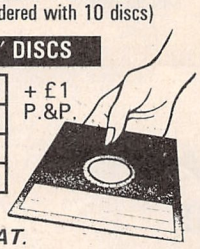

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Program *Dungeons, Amethysts, Alchemists 'n' Everything* **Type** Adventure **Price** £1.99 **Supplier** Atlantis Software, 28 Station Road, London SE25 5AG.

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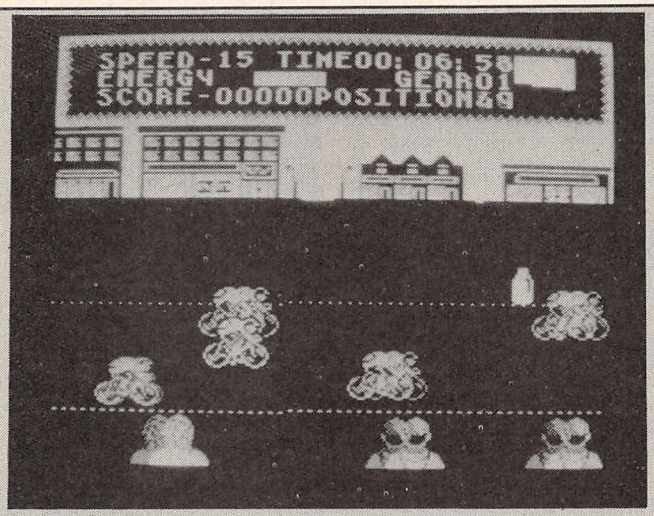

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To combat this loss of energy, pints of milk appear at the side of the road. Run over them and the possibility of exhaustion recedes temporarily.

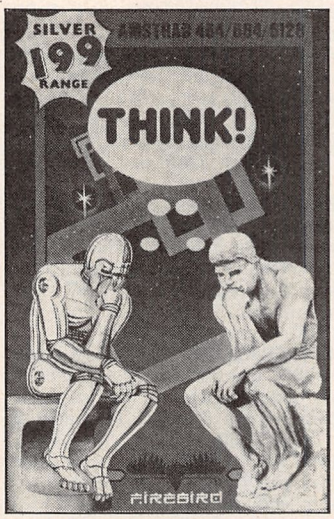
The other hazards in the race include your fellow competitiors who will gladly let you see the road from close quarters, without falling off themselves of course. Then there are the support cars that roam about, and also enough craters to convince you that this is a Port Stanley Memorial race.

While it is easy to get through the initial time trial, completing even the first section is no cakewalk. Still, it is enjoyable, if not thrilling, enough for a couple of quid, and certainly as near to reality as I want to get.

Duncan Evans

Program *Galletron* **Type** Arcade **Price** £1.99 **Supplier** Bulldog, 8–10 Paul Street, London EC2A 4JY.

Program *Think!* **Type** Board game **Price** £1.99 **Supplier** Firebird Silver, 64–76 New Oxford Street, London WC1A 1PS.



Board-type game that would actually be impossible on a board. Slide counters on to a six by six grid against computer or second player; the object is to get four in a row of your own tiles.

A game which deserved to do better when originally released by Ariolasoft and a steal at £1.99.

Program *Thunderzone* **Type** Arcade **Price** £1.99 **Supplier** Firebird Silver, 64–76 New Oxford Street, London WC1A 1PS.

All out blast and kill everything in sight from Dave Harper, author of *Warhawk*.

Program *The Challenge of the Gobots* **Type** Arcade **Price** £8.99 (tape) £14.99 (disc) **Supplier** Reaktor/Ariolasoft, 68 Long Acre, London WC2E 9JH.

Not just the game, but limited edition buyers also get a music cassette telling the story of the Gobots (it says here).

Apple II

Program *Movie Monster* **Type** Arcade **Price** £19.99 **Supplier** US Gold, Units 2/3, Holford Way, Holford, Birmingham B6 7AX.

Atari ST

Program *The Advanced OCP Art Studio* **Type** Graphics utility **Price** £24.95 **Supplier** Rainbird Software, 74 New Oxford Street, London WC1A 1PS.

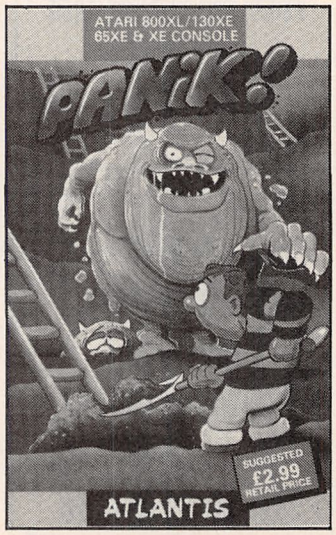
Atari XL/XE

Program *Mini Office II* **Type** Business suite **Price** £19.95 (disc) **Supplier** Database Publications, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

See Amstrad listing for comment.

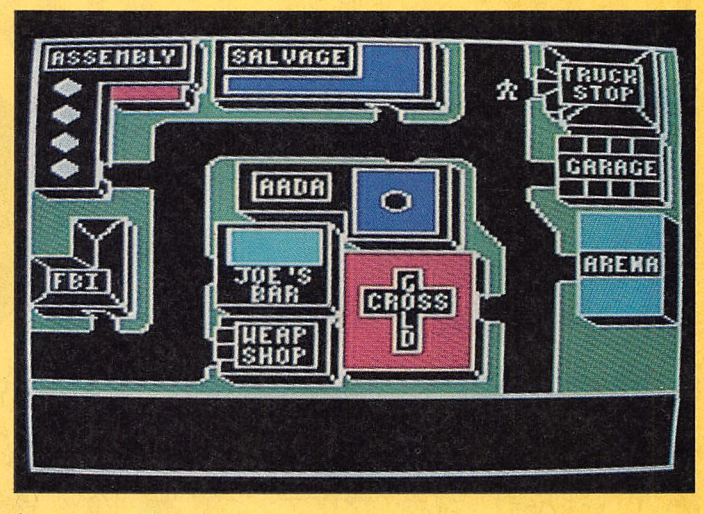
Program *Gauntlet* **Type** Coin-op conversion **Price** £9.99 (tape) £14.99 (disc) **Supplier** US Gold, Units 2/3, Holford Way, Holford, Birmingham B6 7AX.

Gauntlet rolls relentlessly on. Don't expect any breaking of technological barriers or awards for innovation. Content yourself with the fact that it's as faithful a representation of the arcade stalwart as



continued on page 59 ▶

Baby, you can drive my car



Those with long memories and an interest in the general gaming field will remember the tremendous success of the *Car Wars* and *Ogre* board games by Steve Jackson, many years ago.

In 1985 Origin Systems, famous for its *Ultima* series if nothing else, acquired the licence to produce these games in a computer format and duly set to it.

The *Car Wars* fans in this country held their breath and waited. And waited, and waited until presumably they all burst.

Finally, though, for those still whole and interested, *Car Wars* will be available in this country from Microprose Origins, under their US joint venture agreement, in July. *Ogre* will follow in September.

The computer game then, sold under the title *Autoduel*, features you as a hard-up driver in the year 2030, endowed with neither prestige nor wealth. In order to remedy this situation you design your own car, equip it as best you can and go out on the roads of north-east America to raise hell.

There are a number of ways to earn fame and fortune, besides ambushing people on the road. These include being a courier, carrying cargoes from city to city and fighting duels.

In the various cities a number of establishments can be found, all helpful in your quest to become a hot shot duellist. At the truck shop you can catch a bus to the next city (better than walking if you've no car), charge your batteries, stay in a room until some event comes up at the arena, or buy body armour which is somewhat essential.

The assembly line, salvage yard, weapon shop and garage are all worthwhile places to visit if you want to buy another car, sell off salvaged goods, buy weapons and ammunition and repair your motor.

There are also, in some cities, American Autoduel Association branches, hospitals where you can order a clone or be treated, disreputable bars, the FBI office, and other mystery locations. The main location of interest, though, is the arena where you can win prize money and increase your prestige, driving ability and marksmanship. You can also get blown away, but that's life in 2030.

With the option of designing your car how you like it – money prevailing – and upgrading whenever possible, and the courier type quests, you have a good game on paper. Unfortunately the software doesn't live up to the promise in the manual. The graphics are unimpressive but far worse is the speed of the game. Your car and the scenery plod along like a clapped-out Mini rather than a fire-spitting mean machine.

However, *Autoduel* is worth a look. It could have been so good.

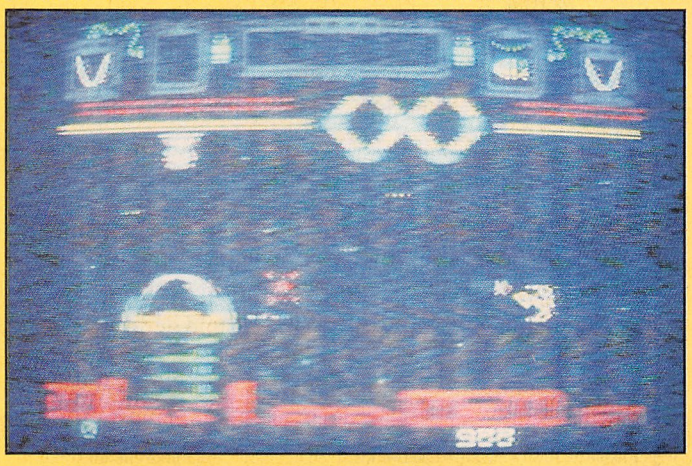
Duncan Evans

Program *Autoduel* **Type** Arcade Strategy **Micro** C64 **Price** £9.99 **Supplier** Microprose, 2 Market Place, Tetbury, Gloucestershire GL8 8DA.

So trigger-happy

One expects originality from Hewson, but it must be said that even when the company decides to go for a more familiar format, the job is done in style.

Zynaps is Hewson's contribution to the *Nemesis* genre, and although we already seem to have seen dozens of versions of this, it must be said that *Zynaps* should revive the old trigger-finger.



The main reason might well be Dominic Robinson's superlative programming. Dom – he of Spectrum *Uridium* – understands the importance of smooth scrolling and impressive use of colour even on the Spectrum. The result is that *Zynaps* – his first complete title – looks incredibly good, with unusually strong use of colour in the backgrounds, and a high frame-rate giving flicker-free movement.

The plot is nothing new; you start off with a slow and under-armed ship, trying to avoid asteroid storms and enemy fighters as you fly through caverns on an alien-infested planet. Goodies available include speed-ups, tri-lasers, guided missiles, and the homing missiles which are essential for destroying the motherships at the end of each level. Some of these are particularly large and impressive sprites.

Zynaps may not be original, but it's well worth the £7.95 asking price. Also on the way are versions for Commodore 64 and Amstrad. The Commodore version looks very nice, and seems challenging to play. The preview of the Amstrad version looks disappointing, but it's not due out until the end of June, so there's plenty of time to iron out those flickers!

Chris Jenkins

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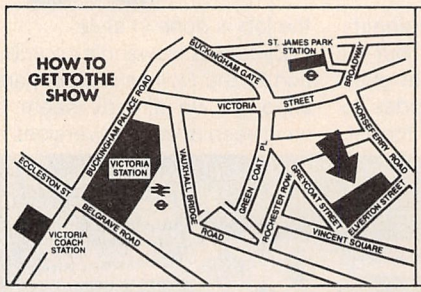

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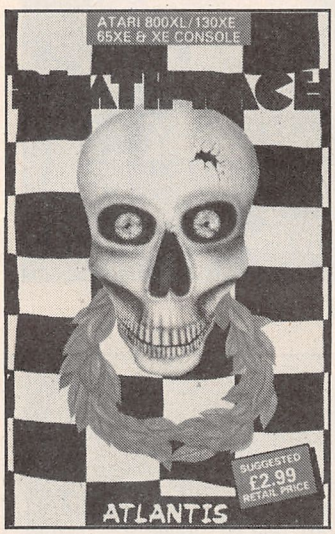
◀ continued from page 56

you could get, and you can't ask for more than that.

Program *Invasion* **Type** Arcade **Price** £1.99 **Supplier** Bulldog, 8–10 Paul Street, London EC2A 4JY.

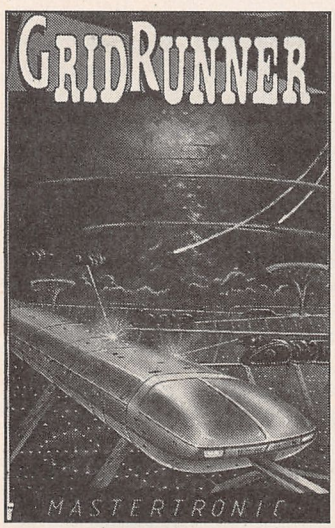
Program *Panik* **Type** Arcade **Price** £2.99 **Supplier** Atlantis Software, 28 Station Road, London SE25 5AG.

Program *Death Race* **Type** Arcade/racing simulation **Price** £2.99 **Supplier** Atlantis Software, 28 Station Road, London SE25 5AG.



No-one could accuse Atlantis of going for any good taste awards. Packaging portrays cheerful picture of Grand Prix round the neck of a macabre skull. A bog-standard racing simulation.

Program *Gridrunner* **Type** Arcade **Price** £1.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2A 4JY.



Jeff Minter's shoot 'em up is about a million years old, and these days, looks it. However, as it's now attained classic status, this is deemed not to matter. The action is still fast and furious.

BBC B/Master/ Compact Electron

Program *Survivors* **Type** Arcade **Price** £2.99 **Supplier** Atlantis Software, 28 Station Road, London SE25 5AG.

Program *Mini Office II* **Type** Business suite **Price** £14.95 (tape) £19.95 (disc) **Supplier** Database Publications, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

See Amstrad listing for comment.

Commodore Amiga

Program *Winter Games* **Type** **Sports simulation** **Price** £24.99 **Supplier** Epyx/US Gold, Units 2/3, Holford Way, Holford, Birmingham B6 7AX.

Conversion of superlative winter sports package to superlative machine. Must be worth adding to your collection.

Commodore 64

Program *Temple of Terror* **Type** Graphic Adventure **Price** £9.99 (tape) £14.99 (disc) **Supplier** US Gold, Units 2/3, Holford Way, Holford, Birmingham B6 7AX.

Program *Eagles* **Type** Arcade **Price** £8.95 (tape) £12.95 (disc) **Supplier** Hewson Software, Hewson House, 56b Milton Trading Estate, Milton, Abingdon, Oxon OX14 4RX.

The wholesale slaughter of aliens in outer space is in vogue at the moment – must be the weather, or the impending general election, perhaps.

As this is from Hewson, you can expect something fairly classy. It's programmed by Per Madsen and Bo Nielsen, who hail from Denmark.

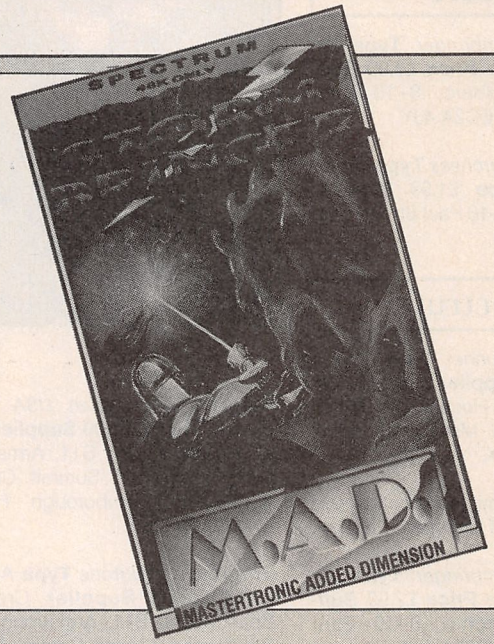
Program *Colony* **Type** Arcade **Price** £1.99 **Supplier** Bulldog, 8–10 Paul Street, London EC2A 4JY.

Program *Ball Crazy* **Type** Arcade Adventure **Price** £2.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2A 4JY.

Program *Rasterscan* **Type** Arcade **Price** £1.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2A 4JY.

Program *Doc the Destroyer* **Type** Arcade **Price** £8.95 **Supplier** Melbourne House, 8–10 Paul Street, London EC2A 4JY.

Program *Pneumatic Hammers* **Type** Arcade **Price** £1.99 **Supplier**



Stormbringer **is the third and, supposedly concluding, chapter of David Jones' and Mastertronic's Magic Knight trilogy. The plot, this time, goes a little like this: due to a problem with a faulty time machine, Magic Knight has suffered a severe case of schizophrenia and split into two. His other half is known as the stormbringer, due to his predilection for annihilation with lightning bolts from his personal storm cloud. The idea is for Magic Knight to make himself whole again and rid the S6 location world of the stormbringer.**

As usual there are numerous objects to manipulate and many characters to interact with. The problems are many fold, and can be solved in the time-honoured fashion of arcade adventures. Windimation, the use of multiple windows to cut out the need for masses of different keys or a text entry system, is present once more.

The graphics and animation are up to the usual first rate standard, the animation especially being very smooth. Unfortunately there are quite severe attribute problems, with Magic Knight's colour changing the background as he passes over it.

You can change this so that the background changes his colour but this is worse. It doesn't detract from the playability game though, and given the technical limitations of the computer, is easily bearable.

David Jones has worked his usual magic to provide a worthy ending to the trilogy, essential fare for arcade adventurers and apprentice Knights everywhere.

Duncan Evans

continued on page 60 ▶

NEW RELEASES

◀ continued from page 59

Firebird Silver, 64–76 New Oxford Street, London WC1A 1PS.

According to the breathless press blurb from Firebird, this game will have you "waggling your joystick in pleasure and thumping the keyboard in rage". A company in need of a thesaurus, methinks. Particularly as you play Red O'Blair, which can only be an anagram.

Program *The Challenge of the Gobots* **Type** Arcade **Price** £9.99 (tape) £12.99 (disc) **Supplier** Reaktor/Ariolasoft, 68 Long Acre, London WC2E 9JH.

MSX

Program *Stormbringer* **Type** Arcade Adventure **Price** £2.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2A 4JY.

Program *Masterchess* **Type** Chess simulation **Price** £1.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2A 4JY.

Spectrum

Program *Gunrunner* **Type** Arcade **Price** £7.95 **Supplier** Hewson Software, Hewson House, 56b Milton Trading Estate, Milton, Abingdon, Oxon OX14 4RX.

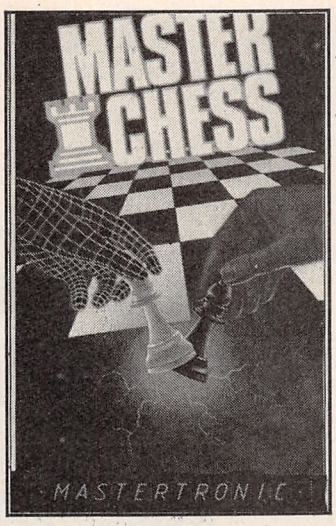
More indiscriminate shooting, this time courtesy of Christian Urquhart.

Program *Stormbringer* **Type** Arcade Adventure **Price** £2.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2A 4JY.

Program *Ball Crazy* **Type** Arcade **Price** £2.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2A 4JY.

Program *Galletron* **Type** Arcade **Price** £1.99 **Supplier** Bulldog, 8–10 Paul Street, London EC2A 4JY.

Program *Masterchess* **Type** Chess simulation **Price** £1.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2A 4JY.



Program *Touchdown USA* **Type** Strategy **Price** £1.99 **Supplier** Creative Sparks, Unit B11, Armstrong Mall, Southwood Summit Centre, Southwood, Farnborough, Hampshire GU14 0NP.

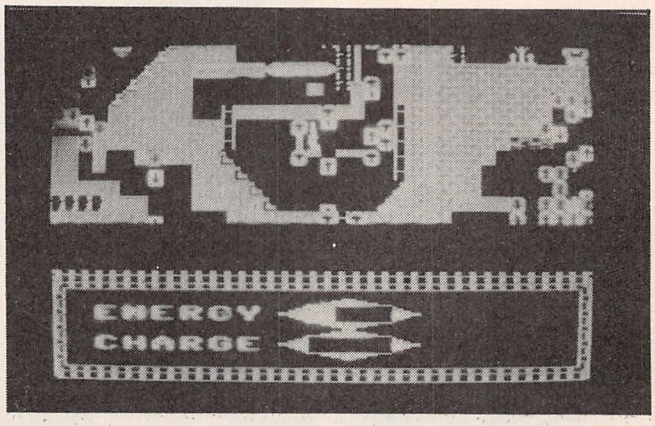
Program *Metaldrone* **Type** Arcade **Price** £1.99 **Supplier** Creative Sparks, Unit B11, Armstrong Mall, Southwood Summit Centre, Southwood, Farnborough, Hampshire GU14 0NP.

Program *Tarantula* **Type** Arcade **Price** £1.99 **Supplier** Creative Sparks, Unit B11, Armstrong Mall, Southwood Summit Centre, Southwood, Farnborough, Hampshire GU14 0NP.

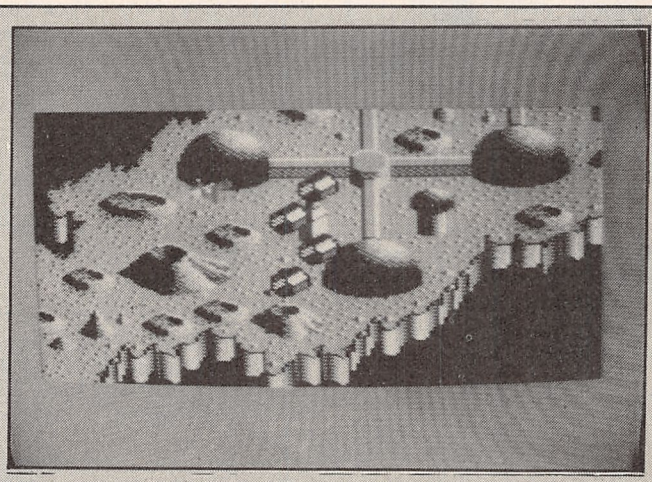
Program *Election Whizz* **Type** Application **Price** £4.75 incl P&P **Supplier** Lobos Software, 10 Randall Place, Bradford, West Yorkshire BD9 4AE.

Election sweepstake program for those holding parties on election night.

Program *Jackle & Wide* **Type** Arcade **Price** £2.99 **Supplier** Bulldog, 8–10 Paul Street, London EC2A 4JY.



Escape from paradise on the C64



Oh dear, what a shock. English Software's Amstrad version of *Leviathan* is the worst case of Convertus Horridversionus I've seen for some time. You may well remember the Commodore 64 version; a kind of *Zaxxon/Uridium* hybrid, in which diagonal scrolling and intricate landscape design were refined to a very high level. While the plot remains the same, the animation of the Amstrad version is very poor.

***Leviathan* would certainly be worth checking out if it weren't for this failing. Apart from being able to direct your ship in any of four directions, there are swarms of aliens to avoid and surprisingly good music and spot effects. There are three landscapes to penetrate, loaded separately from tape; Moonscape (the master program), City scape and Greekscape.**

Each level also offers a selection of nasties; energy barriers, guided missiles, swarms of ships and of course physical barriers to avoid.

Although you can only view your status – fuel, weapons and so on – by pressing the Return key to bring up a central display screen, *Leviathan* would be a good game if the animation were up to it. Unfortunately, it's perhaps the worst I've ever seen; you can practically hear the CPU thinking "I'll just jerk along another character square now. Urrgh!" This, and nothing else, lets the game down. Certainly not worth £8.95. Chris Jenkins

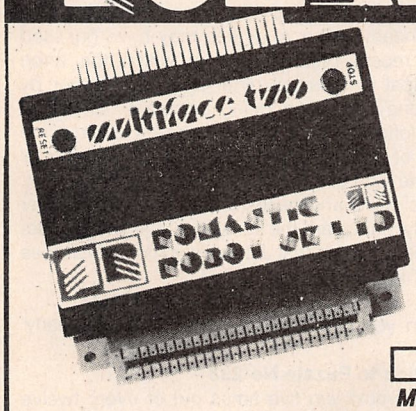
CHARTS

Top Twenty

1	(1)	BMX Simulator	Code Masters
2	(3)	Feud	Bulldog
3	(16)	Enduro Racer	Activision
4	(2)	Four Great Games	Microvalue
5	(4)	Football Manager	Addictive
6	(9)	Gauntlet	US Gold
7	(5)	Six Pack	Elite
8	(19)	Ollie and Lisa	Firebird
9	(7)	Konami's Coin-op Hits	Imagine
10	(10)	Five Star Games 2	Beau Jolly
11	(–)	Olympic Spectacular	Alternative
12	(14)	180	Mastertronic
13	(6)	Auf Wiedersehen Monty	Gremlin Graphics
14	(–)	Army Moves	Imagine
15	(15)	Into the Eagle's Nest	Pandora
16	(13)	Deeper Dungeons	US Gold
17	(–)	Leaderboard	Access/US Gold
18	(8)	Arkanoid	Imagine
19	(–)	Ninja	Mastertronic
20	(12)	Big Four	Durell

All figures compiled by Gallup/Microscope

ROMANTIC ROBOT present



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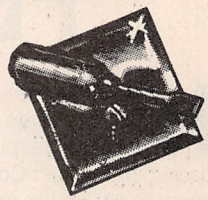

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MICRONET tested all four back-up devices currently on the market: *ACTION REPLAY* by Datel, *DISC WIZARD* by Evesham Micros, *IMAGER* by Mirage and *MULTIFACE 2* by Romantic Robot. They were all tested on the TOP 10 GAMES for the week ending January 1987. Each copier was tested at the same point in each game and in the event of a failure the reviewer tried twice more. These are some of the results:

Out of overall 100% success claimed, the actual percentage was:

ACTION REPLAY – 20%	DISC WIZARD – 40%	IMAGER – 50%	MULTIFACE – 100%

MULTIFACE was confirmed as the ONLY TRULY AUTOMATIC back-up device – all other copiers require manual setting of colour, screen mode, windows, etc. – provided they do not crash in the first place! This when tested on 10 games took altogether:

ACTION REPLAY – 15 mins	DISC WIZARD – over 175 mins	MIRAGE – over 66 mins	MULTIFACE – not applicable

The Actual SAVING time was in seconds:

ACTION REPLAY – 33.4	DISC WIZARD – 44.5	IMAGER – 36.6	MULTIFACE – 32.5

Naturally, you should add the SAVING time and the SETTING UP time together to get a true saving time per each game:

ACTION REPLAY – over 2 mins	DISC WIZARD – over 18 mins	MIRAGE – over 7 mins	MULTIFACE – 32.5 seconds

The loading time took on average in seconds:

ACTION REPLAY – 21.7	DISC WIZARD – 40.7	MIRAGE – 36.6	MULTIFACE – 19.7

Each device made a back-up of a different file size – on average:

ACTION REPLAY – 68K	DISC WIZARD – 89K	MIRAGE – 53K	MULTIFACE – 49K

The summary of the tests on MICRONET?

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THE POLITICS OF FEELING GOOD

How come when you have an enjoyable pastime there is a veritable horde of experts desperate to tell you how damaging it is? Computers in particular seem to get up the doom-merchant's snout.

The health experts are ever eager to warn us that we are heading for the great database in the sky and unless we abandon those keyboards and put in some healthy exercise we'll all die young. One medic even stated that the excitement of computer games causes hypertension. As for the younger generation, computers would ensure that they grew up both myopic and neurotic.

Remember also the great radioactivity scare: computer screens would shrink your genes. Chernboyl put that in the shade. Compared to damage to livestock in central and northern Europe, screens were non-starters.

The psychologists, of course, knew the whole computer thing was a flight from reality. They told us that all those adventure games and role playing programs were mere symptoms of our inability to come to terms with our subconscious conflicts. And you thought you played them just for fun!

Of course, the general public had been well warned that your average computer buffs spent most of their time hacking into confidential files. That is when they were not swindling multinationals out of a fortune in half-pennies, or starting Word War Three by interfering with nuclear defence networks.

Lately I read that a marriage guidance councillor has warned that computing can ruin your marriage. Apparently the institution of wedlock is in danger of crashing because some people love their micro more than their spouse. But why blame the computer? Surely if you prefer a computer to your partner it is as much a comment on your beloved as your hobby. Marriages die from deeper causes than an overdose of adventure games.

Yet such accusations are symptomatic of many so-called experts' opinions in that they are merely an excuse for an ego trip on the latest bandwagon. The warnings are not really meant to help the computer fraternity but rather to titillate the general public. There is nothing like a little doom and gloom to get your name in the papers.

Of course, as the headline value of micros decline the prophets of despair will be forced to find new sins to decry: railing against the latest golden calf is newsworthy, flogging a dead horse is not.

Yet the really annoying aspect is that these "experts" leave behind a distorted image of computing in the popular mind, a series of prejudices that are not easily eradicated. Computing is viewed as a hang out for weirdos and wallies rather than a serious pursuit.

In the end we are marked with the stigma of crankiness while the experts, wrapped in their aura of righteousness, search for new ways to get their name in print. I feel used by such people and it is not a nice feeling.

J McBride

"The health experts are ever eager to warn us that we are all heading for the great database in the sky unless we abandon those keyboards"

Puzzle No 258

Flushed with success in his investigations of 'nearly' equilateral triangles and 'nearly' squares, Jamie has turned his attention to 'nearly' cubes.

A 'nearly' cube is, as you may have guessed from recent puzzles, one in which the three principal dimensions differ from each other by just one unit, each being an exact number of units long. Jamie particularly wanted to find some pairs of 'nearly' cubes that had the same total volume as a single larger 'nearly' cube.

Excluding any cases where the two smaller 'nearly' cubes are the same size, the smallest set of 'nearly' cubes that Jamie could find were those with the dimensions:

(8*9*10) + (14*15*16) = (15*16*17)

Can you find the next *three* sets of 'nearly' cubes?

Solution to Puzzle No 253

Jamie would win five times out of every twelve games, so the odds that he was offering were heavily in his favour.

For each set of three cards (which must have different digits on them), there are six possible arrangements. As the terms of the bet only required one of these to form a number exactly divisible by 13, the answer is best found by computing all possible combinations of digits and testing the six numbers in turn.

The array N(6) is used to store the six values in lines 60 to 110. These are formed from values in the three loops, A, B, and C. In generating sets of numbers A is always taken as the smallest of the three digits and C, the largest. This speeds up the program as it eliminates duplication of sets of digits selected.

Note that we are not simply computing the frequency of *every* number that is divisible by 13, just the number of successful draws of each set of three cards. This is because some sets of three digits may have more than one combination of digits that form a multiple of 13, but this would only count as one 'WIN'.

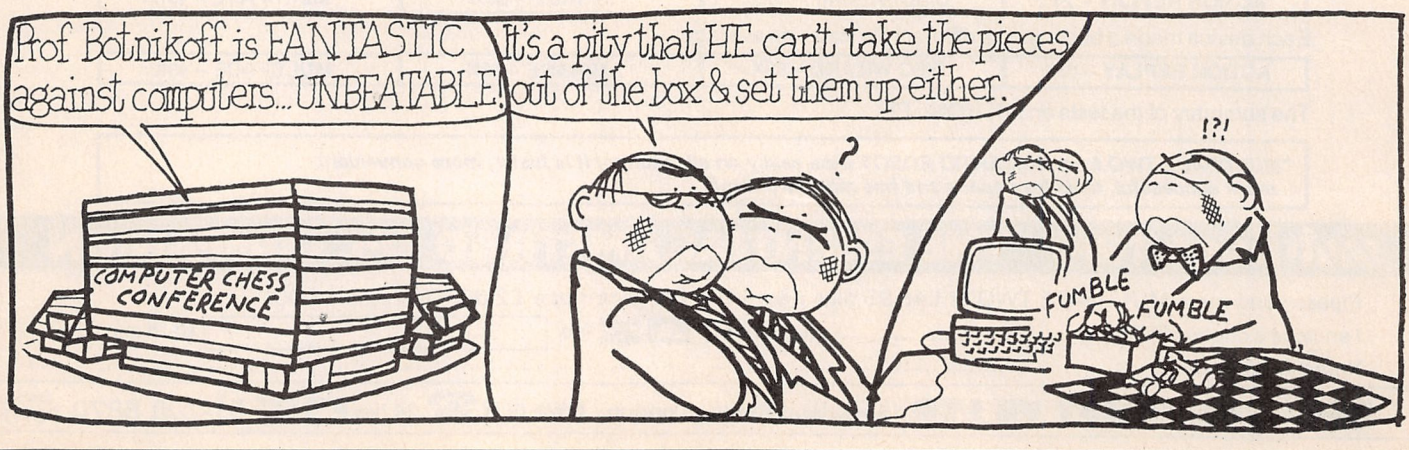
Winner of Puzzle 253

This week's winner is Dave Jones of London E6, who is obviously far too good at puzzles, and will receive another £10.

Rules

Closing date for Puzzle 258 is June 10.

```
 10 DIM N(6)
 20 WIN=0:LOSE=0
 30 FOR A=0 TO 7
 40 FOR B=A+1 TO 8
 50 FOR C=B+1 TO 9
 60 N(1)=A*100+B*10+C
 70 N(2)=A*100+C*10+B
 80 N(3)=B*100+A*10+C
 90 N(4)=B*100+C*10+A
100 N(5)=C*100+A*10+B
110 N(6)=C*100+B*10+A
120 FL=0
130 FOR F=1 TO 6
140 IF N(F)/13=INT(N(F)/13) THEN FL=1
150 NEXT F
160 IF FL=1 THEN WIN=WIN+1 ELSE LOSE=LOSE+1
170 NEXT:NEXT:NEXT
200 PRINT WIN,LOSE
210 END
```

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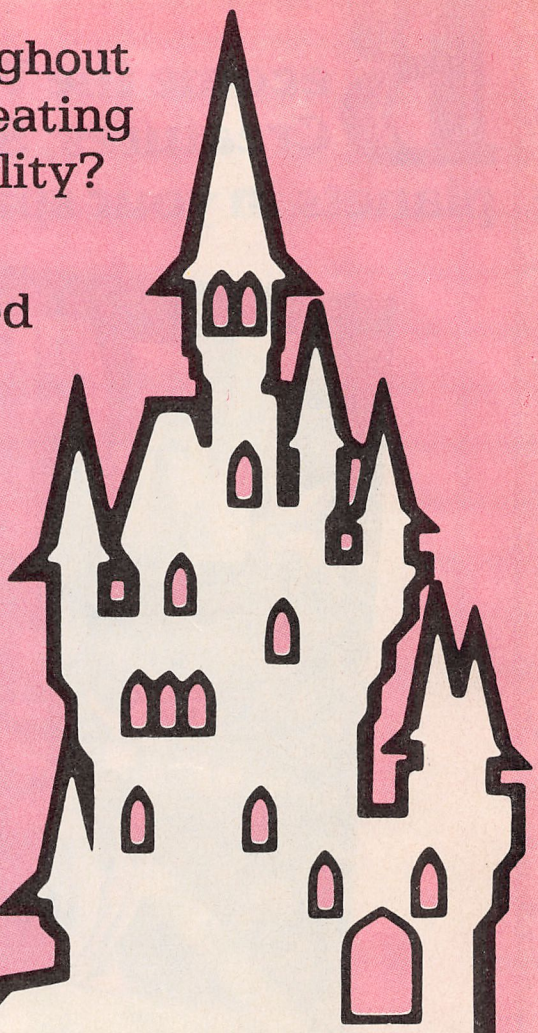

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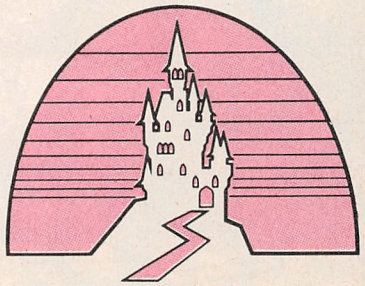

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